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PAPER TRADE JOURNAL

AUGUST 17, 1944

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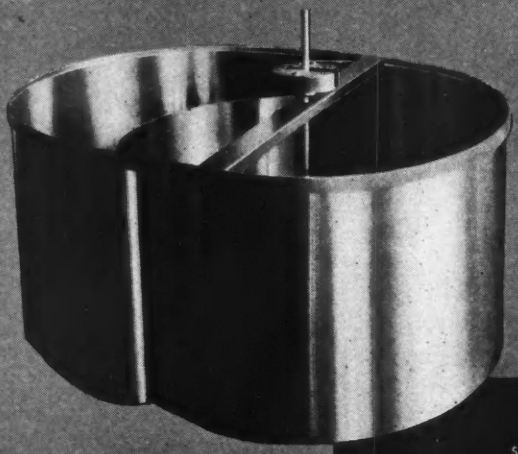

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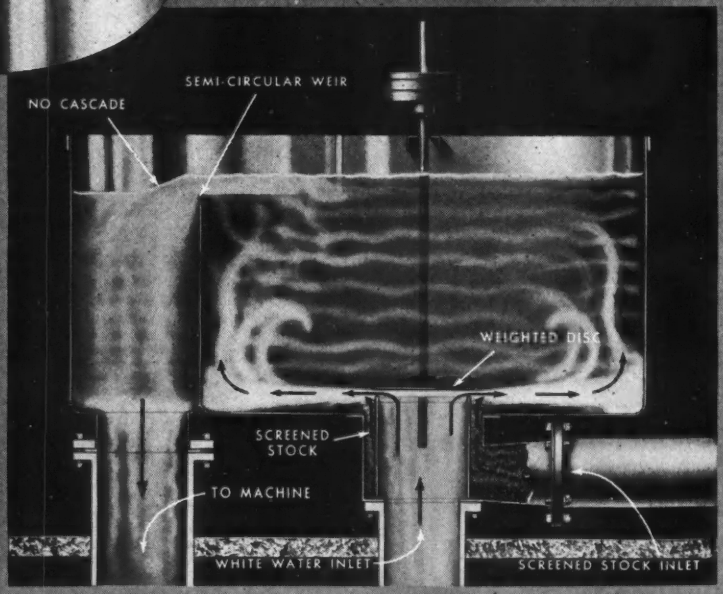

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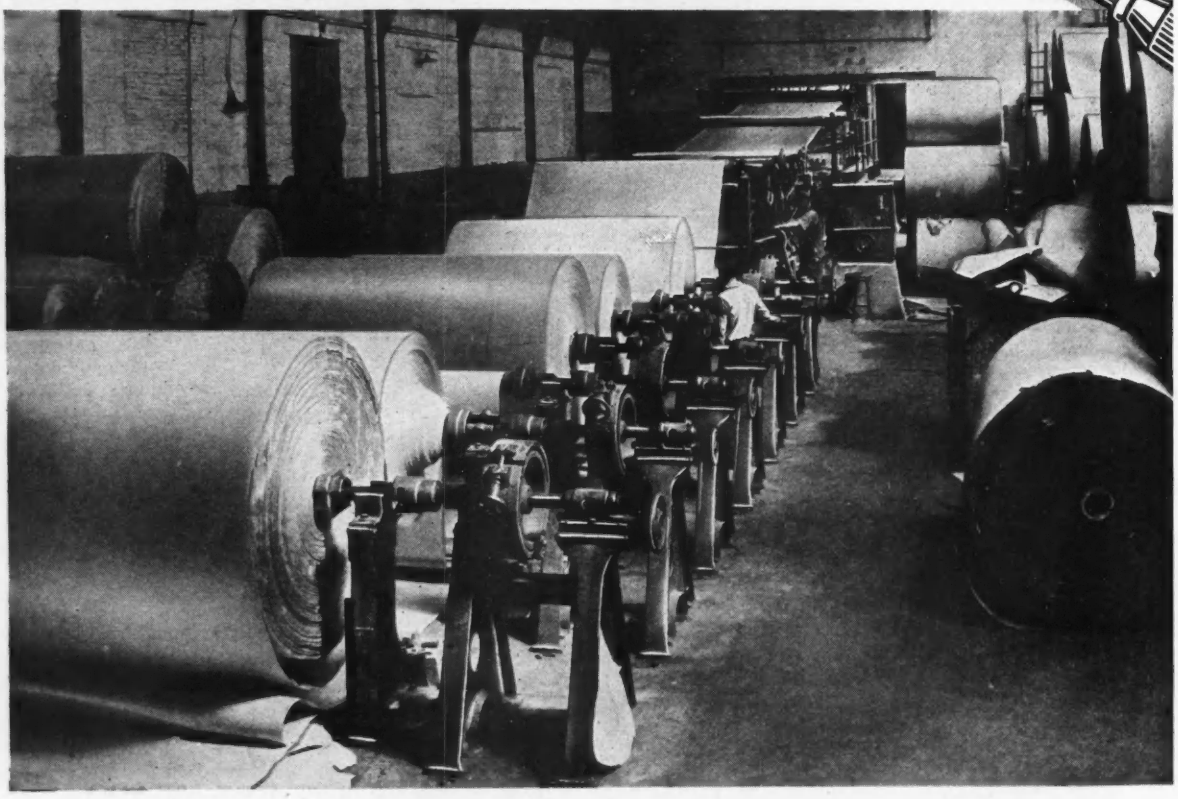

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Vol. 119, No. 7

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

August 17, 1944

Military Needs For Wood Pulp Increasing

Director of Forest Products Branch of War Production Board Reports Heavy War Demands For Pulp and Paper Now At Peak—Civilian Supply May Be Cut—Industry On Hand-To-Mouth Basis.

Military requirements of woodpulp for production of such products as explosives and high tenacity rayon for tires, as well as for overseas packaging and certain special uses, have reached the highest point of the war and are expected to step up in war theaters throughout the world, Harold Boeschenstein, acting director of the Forest Products Bureau of the War Production Board, said on August 10.

"Army and Navy requirements of pulp used in the manufacture of explosives and ammunition will be more than twice as high in the third quarter of 1944 as in the first quarter," he said, "and present estimates are that fourth quarter demands will exceed those of the third quarter."

Demand in Excess of Supply

As a result of the increase in war needs for paper, substantial improvements in pulpwood production and waste paper collections during the first half of 1944 have not been sufficient to balance the demands despite further curtailments by WPB in supplies of paper for civilian uses, Mr. Boeschenstein explained.

Mill receipts of pulpwood through June of this year have been encouraging, he said, but this improvement is not reflected in an equal increase in pulp and paper.

Pulpwood deliveries to the mills during the first half of 1944 totaled approximately 8,369,000 cords. This record was 27% better than the corresponding period of 1943, when pulpwood receipts dipped to their lowest level of the war, but it is four per cent under the first six months of 1942, when pulpwood receipts reached their highest peak in the industry's history.

Pulpwood Receipts Up in June

June receipts of domestically-produced pulpwood continued an upward trend, aggregating 1,336,000 cords, or 37% above June, 1943, and approximately the same as June, 1942. Similarly, the half-year record of domestic pulpwood deliveries showed a 27% improvement over the same period last year, but was slightly under 1942.

By regions, mill receipts were good in June everywhere except in the Northeast, where the inventory situation is still critical. The South reached a new high of 660,000 cords, a 50% rise over June, 1943. (The attached table shows pulpwood receipts).

Reviewing the general pulp and paper situation, Mr. Boeschenstein made the following statement:

"Any change in the present situation, whether it be a drop in production due to adverse weather conditions or a further rise in military requirements, will seriously upset the balance between raw material supply and demand.

Industry on Hand-to-Mouth Basis

"The pulp and paper industry is now operating on a hand-to-mouth basis because of the near depletion of both pulpwood and pulp inventories during the lean production months from the fall of 1942 through the summer of 1943.

"In all regions except the South, pulpwood consuming mills must build up inventories in the summer and early fall to carry them through the winter and bad weather seasons when their receipts drop sharply or stop. Most of these mills at present have no inventory cushions to fall back on if pulpwood deliveries are cut off or curtailed.

"In 1942 and 1943 the pulp and paper industry used 1,700,000 more tons of fibrous materials than were produced in that period and made deep inroads into inventories of pulpwood, pulp, waste paper, as well as stocks of new paper products.

"An indication of the seriousness of the decline in inventories is shown in the following percentages representing reductions:

Waste Paper, from high of 1942 to low of 1943—down 59%.

Wood pulp, from high of 1942 to low of 1943—down 56%.

Pulpwood, from third quarter of 1942 to third quarter, 1943—down 28%.

New paper (wholesale stocks), from high of 1942 to low of 1943—down 26%.

"With mill pulpwood receipts approximately equal to the current level of requirements, paper production, without its normal inventory cushion, would drop quickly below actual needs if anything went wrong with future pulpwood production. Any further losses in trucks and tires, without replacements; a drought in the North or prolonged rains in the South; additional drains on manpower by the armed services or war plants, or the recall of prisoners of war, would seriously retard our present paper output.

Military Needs Up For Several Months

"Military requirements for paper have been upward for many months and on top of this, the sudden step-up in the tempo of the war is now reflected in overseas demands.

"Every troopship that sails overseas raises the

(Continued on page 27)

Employment in Mills Shows Decline in Year

Wisconsin Wage Earners Gain In June But Show 2.1 Percent Loss Over Last Year — Weekly Payrolls Are Higher — Low Water Hampers Production — Labor Board Orders Clause Retained.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 14, 1944—Wage earners in Wisconsin paper and allied industries numbered 23,300 during June, according to the monthly report issued by the Industrial Commission of Wisconsin at Madison, Wis. This represented a 1.5% gain over May but a 2.1% decline when compared with June, 1943, the respective totals being 23,000 and 23,800.

Weekly payrolls, however, averaged higher than either the previous month or the corresponding month of last year. The figures: $890,000 for June; $885,000 for May, and $860,000 for June, 1943. The percentage of increase over May was 0.5, and over June, 1943, was 3.5. The June average weekly payroll amounted to $38.19 for 46.2 hours worked, or 82.7 cents per hour.

In the Milwaukee metropolitan area, with 21 paper and allied industries plants reporting, there were 2,146 employes, up 0.8% over May, who earned $81,941 representing an increase of 2.5% over the previous month. Weekly payrolls averaged $38.18 for 45.9 hours, or 83.2 cents per hour.

Low Water Hampers Production

Low water in the Wisconsin River has interfered with operations at the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., to a considerable extent. The city itself has been experiencing a water shortage, and the company has agreed to make a supply available in the event of an emergency.

If an emergency develops, the Consolidated mill, which pumps river water and filters it, will turn 1,000 gallons of the filtered water per minute into the city water mains by means of equipment which has long been available for this purpose. Firemen and mill engineers have full instructions as to how the water may be turned into the mains. The extra supply would hold up pressure to 50 pounds in the city's mains, and it is believed this would be adequate.

The decline in river water volume has hampered Consolidated in its wood grinding operations. Much of the mill equipment has been slowed up, and some has stopped completely to economize as much as possible in the use of power available.

Several shifts have been rearranged in the mill itself so that the heaviest equipment would not be using a large portion of the power at the same time the city demands have been heaviest. Periods when the city demands are high are between 11 o'clock in the morning and noon, and from 4 o'clock in the afternoon until 10 o'clock at night.

Labor Board Orders Union Shop Clause

The War Labor Board's Sixth Regional office at Chicago, Ill., on August 9 ordered the Rhinelander Paper Company, Rhinelander, Wis., to include a union shop clause in its collective bargaining agreement with the International Brotherhood of Papermakers, Local 66 (AFL).

The union provision had been held invalid by the Wisconsin Employment Relations Board and the Oneida (Wis.) County Circuit Court, and is now pending before the Wisconsin Supreme Court, Regional WLB Chairman Edgar L. Warren pointed out at the time the order was announced.

However, Philip Marshall, WLB vice chairman, asserted that the "fact that the Wisconsin board has issued an order in this case prior to resort by the parties to the WLB cannot have the effect of ousting the WLB from jurisdiction over the issue in dispute."

Mr. Marshall added that the WLB had held that "state laws are no longer applicable to the dispute where the jurisdiction of the federal government has attached under the War Labor Disputes Act."

The regional board denied the union's request for general wage increases. About 335 workers are affected.

Workers Prefer CIO Representation

The majority of employes at the Misery Bay operations of Nekoosa-Edwards Paper Company, Port Edwards, Wis., have chosen to be represented by the International Woodworkers of America (CIO), the National Labor Relations board announced August 9. The board reported that of 28 eligible voters, 24 cast valid ballots, of which 14 were for the union and 10 against.

Many Golfers in Kimberly-Clark Matches

More than 100 reservations were announced for the golf jamboree Saturday, August 12, for male employes of the Kimberly-Clark Corporation. The jamboree was sponsored by the Kimberly-Clark Activities Association. Elmer DePrez was general chairman of the event, held at Ridgeway Golf Club.

Scores in golf matches were qualifying round scores also for the tournament which will be played later this month. Prizes were given for high and low gross, for net scores, for the longest drives on No. 4 and No. 15, for the ball nearest to the pin on No. 5 and No. 13.

A dinner was served at 6:30 at the club.

Neenah Co. Picnic Largely Attended

About 500 employes of the Neenah Paper Company, Neenah, Wis., members of their families and guests attended the annual company picnic at Waverly Beach on Sunday, August 6. A softball game, a tug-of-war, games, roller skating and dancing were features of the afternoon and evening events for adults and children. Melvin Redlin, Clarence Krablean, Don Kolgen, Agnes Pawlawski and Al Rausch were members of the picnic planning committee.

Workers Pack Gifts for Armed Forces

Women in Production Service of the Kimberly-Clark Corporation's Lakeview mill at Neenah, Wis., are packing gift boxes for employes of the mill who are now in the armed forces.

Stories telling of the project were written for the "Over-Sea-er," Lakeview mill newspaper for the employes in service, and the articles asked the boys to send requests for the packages, which cannot be mailed without the written requests from the soldiers.

Ottawa Parliament Plans Postwar Measures

Important Legislative Program To Aid Conversion Makes Changes In Corporation and Excess Profits Taxes—Low Water Limits Pulpwood Delivery — Drive On For Forest Control — Other News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 14, 1944—The federal Parliament at Ottawa has just adjourned after having put through a lengthy program of legislation much of which is designed to deal with post-war problems. Included is legislation to assist business concerns in meeting the problems of conversion from war to peace production. The most important of these provisions are embodied in changes in the corporation income tax and excess profits tax, and these changes will have an important bearing on the future operations of pulp and paper concerns and forest industries generally. The main points in the changes are as follows:

Provision to spread losses over several years for taxation purposes.

Increased allowances for scientific research expenditures.

Double depreciation on new capital investments made after a date to be set.

Permission, in approved cases, to assign the refundable excess profits tax as security for loans, where such loans are to be used for capital expenditures in preparation for post-war business giving desired employment.

Provision to adjust standard profits upwards by 5% of increased capital employed since the excess profits tax was introduced.

Establishment of a flat rate for the first period of operations of a new business.

Provision for charging against income one-half collective action, has been foremost among Canadian industries in research work. Notable work, for instance, has been, and is being done by the Pulp and Paper Research Institute of Canada, which is under the joint direction of the Department of Mines and Resources of Canada, McGill University, and the Canadian Pulp and Paper Association. This institute is situated in Montreal, and its equipment includes laboratories for chemical research and pulp and paper testing; also semi-commercial equipment for ground wood and alakaline pulping and one 33-inch Fourdrinier.

The wording of the new legislation defines "scientific research" for income tax purposes as "any activity in the field of natural or applied science for the extension of knowledge," including "any scientific research that may lead to or facilitate an extension of that business, or, as the case may be, business of that class." This widely extends the operations of research and may be of considerable application in respect to new uses for articles made of wood pulp, since it will apply to any subject which a firm may believe will ultimately bring new customers for its products. Unless the program of research has been approved by the Minister after consultation with the National Research Council, the limit placed by the new law on the amount of money which may be spent on research is placed at 5% of that portion of the income of the taxpayer in the preceding year which is subject to taxation. No deductions under the new law are to be allowed for expenditure made prior to August 1, 1944, and no deduction may be made in respect of an expenditure incurred in the acquisition of rights in, or arising out of scientific research. Among the amounts maintenance and repair expenditures in a set period.

A provision by which dividends paid by a wholly-owned subsidiary non-resident company to a Canadian parent company be exempt from tax when received by such parent company when taxation has already been imposed in the country in which it is situated.

The Minister of Finance, in submiting thes proposals, said that the present policy of taxing business profits at a rate considerably higher than the United States or Britain carried the danger of high business taxes making inroads on capital because, while true earnings could only be determined over a period of years, taxation accounting was on yearly basis. It was to meet this condition that business firms were to be allowed to charge their losses back to the profits which they may have enjoyed in the previous year or forward to the succeeding three years. The special allowance for maintenance and repair work was given in recognition of the necessity during the past two years of delaying repairs because of shortages of materials and labor and of the fact that such deferred maintenance had the effect of inflating the profits which were subjejct to taxation. In respect to the intention to allow double depreciation on capital expenditures at a time to be set, he said the day would come when, on short notice, it would be necessary to tell business the time was ripe to put into effect post-war plans.

The provision granting greater tax allowances for scientific research is of particular interest to the pulp and paper industry, which both by individual initiative and which may be deducted are current payments to a scientific research association approved by the Minister, and payments to a university, college or research institute; also one third of the amounts of a capital nature expended in the manner indicated in the taxation year, the taxation year immediately preceding the taxtion year, and in the taxation year ending one year before the taxation year.

Campaign for Forest Control

An increasingly active campaign is going on throughout Canada for a more rigid control of Canadian forests, and in this the Canadian Forestry Association is taking a leading part. In a statement issued by the Association, Dr. H. J. Cody, president of the University of Toronto, is quoted as saying: "Destruction of Canada's forests by public carelessness must be brought under rigid control if any national plan of security is to be made workable. Small wonder that every class of Canadian expresses alarm at Canada's pace of forest-burning when we are pondering ways and means of employing more people after the war than ever in the country's history. The age-old foundation for jobs and wages is the soil.

"Canada has overcome difficulties far surpassing the forest fire problem. We can remove this blot whenever we decide to set about it."

Chicago Awaits Result of Paper Salvage Drive

Cooperation of All Waste Paper Trade Back of August Campaign To Collect More Paper Stock — Midwest Markets Are Quiet — Salesmen To Hold Last Golf Outing—Protest Towel Price Ruling.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 14, 1944—The Chicago paper market is watching the results of the next big paper salvage "pick-up" drive with more interest than it outwardly expresses. Local paper distributors, sales representatives, brokers and others are giving full cooperation to the August effort in the realization that with manpower as it is, much of the hoped for improvement must come from the salvaging of paper already made and suitable for re-use.

Local markets are quiet except for the full consideration of the pulp allocation program and conjecture on what is really going to happen during the final quarter of 1944. No one, according to reports, is overly optimistic and the consensus of opinion seems to be that paper is going to be more tight than any other of the so-called "critical" items for some time to come.

Continued emphasis on supplying expeditionary forces with supplies has brought increased demands on the kraft and container board industry here, an emphasis not yet matched by a willingness on the part of the retailer and consumer to "go without" entirely. Paper trade executives are expressing a belief that the consumer trade needs to be far better sold on the scarcity of paper before there are any real results. Meanwhile, all grades were at top ceilings, none too well pleased over price readjustments from the OPA which have reportedly simply made a bad situation only slightly better. News that OPA might permit pricing of new goods at ceilings reflecting increased labor and overhead costs was received with some satisfaction as a guarantee that the incentive to make new products may be there when the proper time comes.

Salesmen to Hold First Golf Outing

The western division of the Salesmen's Association of the Paper Industry will ring down the curtain on its abbreviated summer outing schedule next Friday, August 18, at the Knollwood Country Club. It will be the second and final event of the year and golf chairman Lou Ellis is looking for an exceptionally good attendance despite vacations, tire and gas shortages. Informal luncheon, golf and dinner in the evening, with appropriate prizes, is on the calendar for the wind-up event.

Dramatize Salvage Drive

The Chicago newspapers, retail stores, transportation systems, radio and every other conceivable means of publicity have been called into play to dramatize the curb pick-up program scheduled for August 12. Photographs of movie stars, appeals to the parents of Boy Scouts to urge their sons to volunteer, window cards describing the "pick-up," movie trailers, dramatizations of the uses for paper, State street demonstrations and reams of editorials and news features have been created to insure no lagging on this drive which is expected to set the pace for the entire nation. All OCD officials and members, suburban community leaders, Scouts, janitors, building managers, city officials and employees and others have been enlisted to put the salvage drive over and John Robinson, chairman of the Chicago Newspaper Publishers Committee, is certain that the quota will be reached. Albert Meisterheim, well known Chicago paper stock broker, J. V. Spachner of the Pioneer Paper Stock Company and other local paper trade leaders are solidly back of the drive.

Protest Price "Squeeze"

Chicago and Illinois dealers of paper towels have protested to the Office of Price Administration the recent increase of 25 cents per case on a certain grade of paper towels made by a well known paper manufacturer. These distributors, who have been advised that they must absorb this increase on the grounds that their total profits are satisfactory, have expressed their displeasure in no uncertain terms. OPA, on the other hand, has assured these distributors that this "squeeze" will be rectified and that the proper order is now in the hands of the legal section of OPA. The inequity in the ruling has been recognized and it is expected that representatives of the Office of Price Administration will be in Chicago next week to obtain information on the legitimate mark-up for this category of goods.

New Tax Regulations Affect Industry

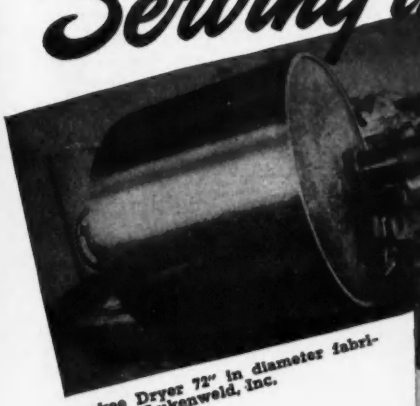
New regulations being prepared by the Illinois Department of Revenue and based on recent court decisions affecting sales to service occupations are going to be of real interest to certain members of the paper trade and to some of their affiliates. That part pertaining to shipments in interstate commerce is going to be covered in detail but it seems safe to assume, even now, that there will be no Illinois sales tax on sales originating in other States. Other important changes are as follows:

Persons who sell paper and ink to printers who incorporate such items into printed matter which they sell are no longer held to incur Retailers Occupation tax.

Persons who sell tangible personal property to persons who are engaged in service occupations or professions and who resell the property, as distinguished from using or consuming the property themselves or giving the property away are no longer held to incur R.O.T.

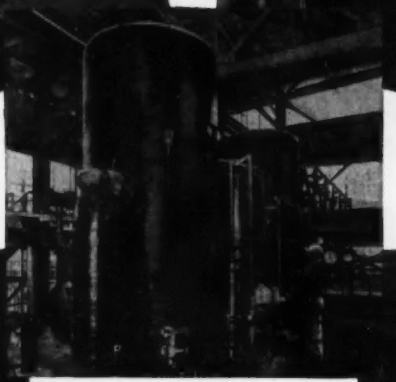
Persons who sell containers to purchasers, such as launderers, dry cleaners, etc., who transfer the ownership of such containers to others for whom they are rendering service for a charge are no longer held to incur the tax. However, the rule still applies which provides that paper napkins and towels, toilet tissues, drinking straws and paper cups or plates are deemed to be sold for use or consumption when sold to a purchaser for use in connection with the conduct of his business and not for resale as such, and vendors thereof to such purchasers are still held to incur R.O.T. liability.

Serving the Paper Industry...

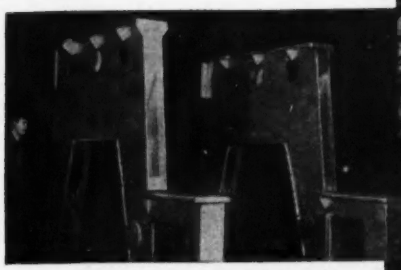


Yankee Dryer 72" in diameter fabricated by Lukenweld, Inc.

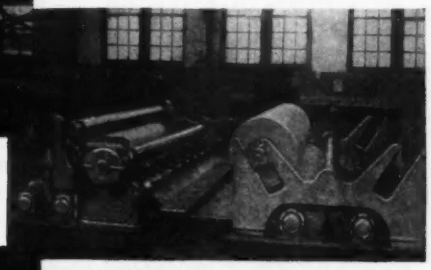
Welded Steel Dryer Roll, 8'0" O.D. fabricated by Lukenweld, Inc.



Double effect forced-circulation type evaporator fabricated by Buffalo Foundry & Machine Company, Buffalo, N. Y., of 20% Lukens Nickel-Clad Steel.



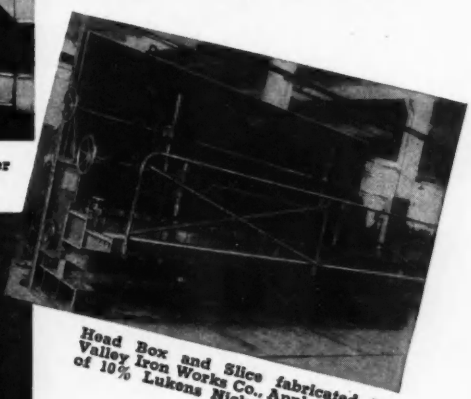
Welded Steel Yankee Dryer Supports fabricated by Lukenweld, Inc.



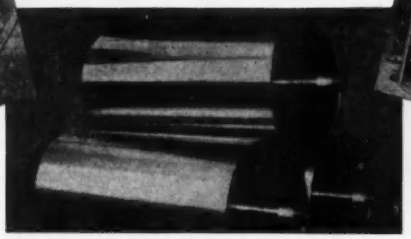
Welded Steel Machine Frame built from parts fabricated by Lukenweld, Inc.

Welded Steel Cantilever Fourdrinier Support fabricated by Lukenweld, Inc.

Cylinder Machine Vat with 10% Lukens Nickel-Clad Steel center section fabricated by Hendrick Mfg. Co., Carbondale, Pa.



Head Box and Slice fabricated by Valley Iron Works Co., Appleton, Wis., of 10% Lukens Nickel-Clad Steel.



Standard Dryer Rolls 36" O.D. fabricated by Lukenweld, Inc.

STEEL plate weldments, because of the dense homogeneous structure of rolled steel, free from blowholes and sand pockets, offer greater strength and economy with less weight. More efficient heat transfer is made possible with welded steel dryers because of thinner, stronger walls. Where corrosion causes product contamination and short equipment life, Lukens Clad Steels, Nickel-Clad, Inconel-Clad, and Monel-Clad, offer an economical solution. They consist of a layer of solid nickel, Inconel or Monel permanently bonded by hot rolling to a heavier layer of steel. Thus the advantages of solid nickel, Inconel or Monel are obtained at ½ to ⅔ the cost.

LUKENS STEEL COMPANY

— AND DIVISIONS —

BY-PRODUCTS STEEL CORPORATION
236 Lukens Building

LUKENWELD, INC.
Coatesville, Pennsylvania

History of the Garrett-Buchanan Co.

This company was doing business during the "Gaslight" Era, when men wore long beards, when the city of Philadelphia was the second largest city in the United States with a population of 726,144. Franklin D. Roosevelt and Herbert Hoover were not even born.

Alexander S. Buchanan was bookkeeper for C. S. Garrett Bro. & Co. of which Sylvester Garrett was a partner. Early in the seventies Mr. Garrett perfected a process for waxing paper. The first wax paper for which this was used was for wrapping butter which became very popular. Casper S. Garrett personally owned paper mills at that time.

When Casper Garrett bought out Sylvester Garrett's interest, the partnership of the Garrett-Buchanan Company was then started. The Garrett-Buchanan Company was awarded a gold medal for its wax paper products at the Centennial Exposition held in the year 1876.

The president, Morgan H. Thomas, started as a youth at $10.00 per week. In those days, all invoices were written by hand. Mr. Thomas has served in many capacities up to the time he was elected president on January 6, 1928.

Mr. Thomas had departmentalized his business having a manager and an assistant for each department, all of whom are specialists in their particular field. This was necessary due to the great expansion of the business. The firm carries envelopes, paper and cardboard in most every form consisting of twelve different and complete departments. In October, 1929, the Van Reed Paper Company, Reading, Pa. was purchased. This is managed by C. Raymond Smith, V. P. Later the Charles W. Beers of Baltimore was acquired. The name was later changed to Garrett-Buchanan Company. The manager is George Rittinger who also started as a young man many years ago.

The company also has a branch in Lancaster managed by William Price, a youth who started at the bottom. The company has a warehouse in addition to its main offices at 12-14-16-18 and 20 South Sixth street in Philadelphia.

Vice President George W. Weaver is their manager, assisted by F. H. Seltzer, vice president. Ellwood Thomas is treasurer and Joseph H. Miller secretary.

Brown Co. Elect Vice-Presidents

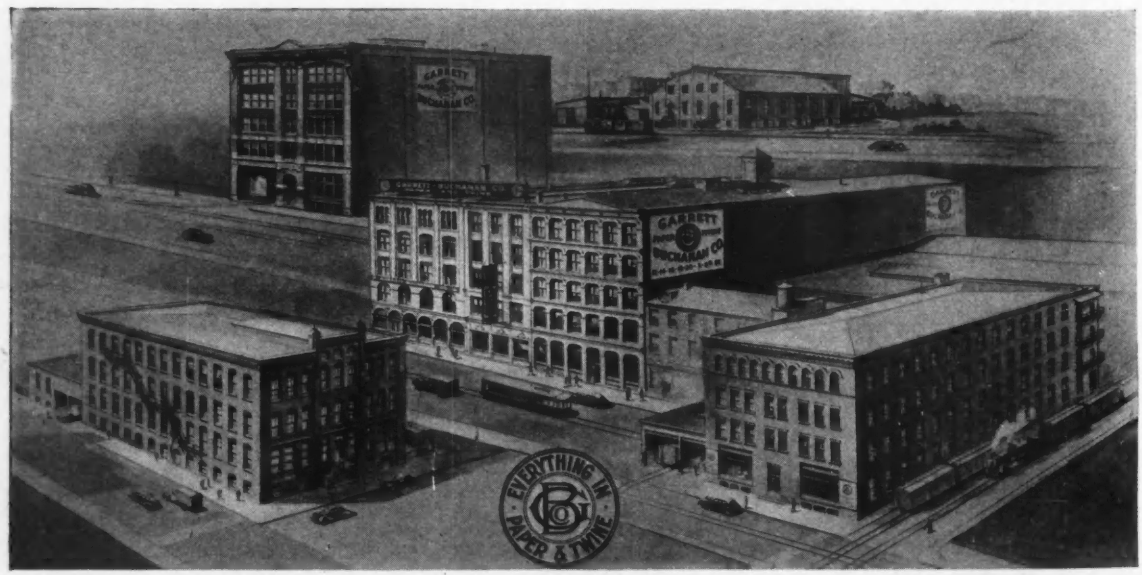
[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 7, 1944—There is much interest here in the news from Berlin, N. H., that the Brown Company and its Canadian subsidiary, Brown Corporation, of La Tuque, Que., has elected three additional vice-presidents. The Brown Corporation's pulp mill at La Tuque, situated in the midst of a magnificent forest region, is one of the most important in Eastern Canada.

Herman G. Schanche, general manager of woods operations since joining the company in March 1943, has now been elected vice-president in charge of woods operations for both Brown Company and Brown Corporation. Mr. Schanche was formerly with Abitibi Power & Paper Company, Ltd. He has been active in the industry for many years and is presently a member of various industry committees and associations.

Dowing P. Brown has been elected vice-president of Brown Company; he will continue to be located in New York City. In the course of Mr. Brown's long service with the company he has filled various positions, the most recent of which has been as assistant to the vice-president in charge of sales.

A new vice-president of Brown Corporation is Wentworth Brown who will continue to serve as production manager of both Brown Company and Brown Corporation. Mr. Brown, who has been with the organization for a period of years, was, before being located in Berlin, for some time in charge of the Canadian mill.



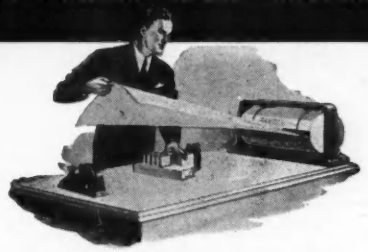
POSITION OF BUILDINGS
Center, Philadelphia Office; Lower Right, Philadelphia Warehouse; Lower Left, Reading, Pa.; Upper Left, Baltimore, Md.; Upper Right, Lancaster, Pa.

A TOUGH FILM-FORMER THAT'S WATER SOLUBLE!

Extraordinary film-forming ability makes Methocel a most useful material. It produces tough, flexible films that are clear, colorless and free from taste or odor. Of outstanding importance—Methocel films are soluble in water—a unique and valuable property that suggests a variety of new uses. For other jobs, resistance to water can be increased.

Methocel films or coatings are unusually stable to discoloration or attack. They are also neutral and non-toxic and are easily plasticized where extra softness is required.

METHOCEL
THE UNIFORM SIZING MATERIAL



In paper sizing and coatings, Methocel's film-forming properties are unusually effective. These properties are responsible for Methocel's ability to form a continuous barrier on the surface of the stock for retarding penetration of oils, greases, ink vehicles, paraffin and paper lacquers. The use of Methocel, therefore, promotes production, saves raw materials and lowers costs.

Application at the size press, water box, or by means of supplementary coating equipment, assures optimum results from even small quantities. Technical data available on request.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit
Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

METHOCEL

Other Dow products for the Paper Industry include: Dowicides, Ethocel, Caustic Soda and many other chemicals.

DOW
CHEMICALS INDISPENSABLE
TO INDUSTRY AND VICTORY

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending August 12, 1944

STOCKS

	High	Low	Last
A. P. W.	4¼	3⅞	4¼
Armstrong Cork Co.	43	42¼	42¾
Celotex Corp.	14¾	13⅞	14⅛
Celotex Corp., pf.	18½	18	18
Certain-Teed Products Corp.	6¾	6½	6⅝
Certain-Teed Products Corp., pf.	99⅜	96¼	99½
Champion Paper & Fibre Co.	26¾	26¼	26¾
Champion Paper & Fibre Co., pf.	112	112	112
Congoleum Nairn Co.	27⅜	26¼	26⅞
Container Corp. of America	25¾	25	25¼
Continental-Diamond Fibre Co.	11⅜	11	11⅜
Crown-Zellerbach Co.	19¼	18⅝	19¼
Crown-Zellerbach Co., pf.	103¼	102	102¾
Dixie Cup Co.	17½	17½	17½
Dixie Cup Co.—A	47⅜	46½	47⅜
Flintkote Co.	24	22¾	23¾
Flintkote Co., pf.	....	....	....
Robert Gair	4½	4⅜	4½
Robert Gair, pf.	16¾	16¼	16¼
International Paper Co.	19	18¼	18⅞
International Paper Co., pf.	82¾	81½	82¾
Johns-Manville Corp.	98	96½	97
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	40	40	40
MacAndrews & Forbes	29½	29½	29½
MacAndrews & Forbes, pf.	139½	139½	139½
Masonite Corp.	45⅜	44¼	45⅛
Mead Corp.	11⅛	10¾	11⅛
Mead Corp., pf. A—6%	95	95	95
Mead Corp., pf. B—5½%	86	85¼	86
National Container Corp.	23¾	21⅜	23¼
Paraffine Companies, Inc.	56¾	53½	56¾
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	15¾	15¼	15¾
Rayonier, Inc., pf.	32	31½	31½
Ruberoid Co.	32	31	31½
Scott Paper Co.	42	41	42
Scott Paper Co., pf.	109	109	109
Sutherland Paper Co.	....	....	....
Union Bag & Paper Corp.	12	11½	12
United Paperboard Co.	6⅜	5⅞	6⅛
U. S. Gypsum Co.	79½	77	79½
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	24¾	23⅜	24¾
West Virginia Pulp & Paper Co., pf.	106¾	106¾	106¾

BONDS

Abitibi Pulp & Paper Co. 5s '53	86½	84½	86½
Celotex Corp. 3¾s '55	103¼	103¼	103¼
Certain-Teed Products Corp. 5½s '48	102½	101¾	102
Champion Paper & Fibre Co. 4¾s 50	....	....	....
International Paper Co. 6s '55	108	107⅝	108
International Paper Co. 5s '47	104	103⅞	103⅞
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending August 12, 1944

STOCKS

Great Northern Paper Co.	35	34½	34½
Hummel-Ross Fibre Corp.	6⅛	6⅛	6⅛
St. Regis Paper Co.	5⅞	5¾	5⅞
St. Regis Paper Co., pf.	....	....	....
Taggart Corp.	5⅝	5⅝	5⅝

BONDS

American Writing Paper Co. 6s '61	101¾	100¾	101¾

International Earns 89 Cents

The semi-annual report of the International Paper Company and its subsidiaries just announced shows a net profit for the first half of 1944 totaling $3,941,273 after all charges including $13,173,218 provision for income and excess profits taxes and $942,324 foreign subsidiary earnings transferred to reserves.

The profit is equal to 89 cents a common share and compares with last year's six months' net of $4,343,201, or $1.11 a common share, after $9,368,394 tax charges and $205,965 foreign subsidiary earnings transferred to reserves. Sales for the half year were $114,430,722 and $104,161,939, respectively.

For the second quarter of this year the company shows a net profit of $1,824,567, or 36 cents a common share, on sales of $59,123,776, against $2,320,082, or 64 cents a share, of $53,197,554 sales for the corresponding three months of 1943.

Puget Sound Nets 61 Cents

The Puget Sound Pulp and Timber Company reports net profit of $232,865 from operations in the first six months of 1944, after providing $379,938 for Federal taxes, in comparison with $228,690 net profit, after $300,477 for Federal taxes, in the first half of 1943. Net per common share equaled 61 cents a share in the 1944 period, and 60 cents in the 1943 period.

Pulp production totaled 53,454 tons in the first half of 1944, in comparison with 46,879 tons in the like period of 1943. Net sales and other revenue amounted to $3,386,378 in the first six months of 1944, against $2,878,965 in that part of 1943. Operating profit before tax provisions was $612,803 in the first half of 1944, compared with $529,167 in that period of 1943.

Net realized from the initial timber payment of $1,450,000 amounted to $1,280,311. From these proceeds a bank loan of $1,050,000 was paid and $230,311 was added to working capital. In addition, return of advances and other adjustments increased working capital by $743,311.

Bowater's Profits Decline

MONTREAL, Que., August 14, 1944—The annual statement of Bowater's Newfoundland Pulp and Paper Mills for 1943 shows that the earnings of the company continued the steady decline since the peak of 1940. Total income for last year amounted to $2,127,347, compared with $2,518,205 for 1942 and $3,031,671 for 1941. Net income was $258,355, as compared with $436,247 for previous year, $942,678 for 1941, and $1,009,846 for 1940.

Working capital increased from $6,505,804 to $7,733,117. The secured bank loan was reduced from $2,125,000 to $373,049.

Certain-teed Profits Up

The Certain-teed Products Corporation for the six months, reports net profit after $210,527 expenses arising from plan of recapitalization now abandoned was $290,076, or $4.30 a preferred share, against $240,676, or $3.57 a preferred share, last year. Results do not include any part of earnings of Sloane-Blabon Corporation, which had a net profit of $48,661 for first half of 1944, compared with $165,881 for period in 1943. Neither do they include profit or loss on purchase of company's debentures.

Dennison Co. Earns More

The Dennison Manufacturing Company, for six months ended June 30, 1944, estimates consolidated earnings at $320,000 after taxes, compared with a revised estimate of $315,000 in the first six months of 1943.

For the first half of 1944 consolidated sales of $9,244,000 showed an increase of 9% over the 1943 period.

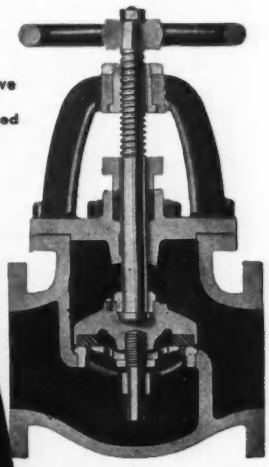
Hummel-Ross Profits Up

The Hummel-Ross Fibre Corporation for the seven months ended July 8, 1944, reports that profits on 391,706 shares of common stock outstanding, amounted to 37 cents a share, compared with .28 cents a share for the like period in 1943.

Does Your Assistant Know HOW TO SELECT A VALVE?

Today, when it is more important than ever before to keep pipe lines flowing at maximum efficiency, too much care cannot be given to selecting the right valve for each job. Before you allow your assistant to specify a valve for that all-important line, make sure he knows what type is needed.

Here is the answer to a frequently-asked question on valve selection, taken from the files of The Kennedy Valve Manufacturing Co. Other questions will be considered in succeeding advertisements in this series.



Globe valve with bronze-faced disc

Question:

WHY ARE THERE SO MANY DIFFERENT TYPES OF VALVES?

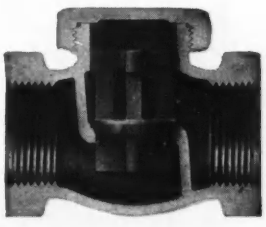
Answer:

Because no single design of valve is suitable for all applications . . . each is best for certain jobs. Double-disc gate valves, for example, are preferable where liquids containing grit are to be handled. Wedge gate valves are recommended for gummy liquids and are preferred for steam service by some engineers. Both types are better than globe valves for lines on which it is important to minimize resistance to flow. Globe valves should be chosen for throttling service and where the valve is to be operated frequently. Outside-screw-and-yoke gate valves provide visual indication of disc position but require headroom. Non-rising stem gate valves are not recommended for corrosive fluids because the stem threads are in contact with the substance handled. Lift-check rather than swing-check valves are preferred for a pulsating flow.

GIVE THE VALVE A CHANCE . . . SELECT IT FOR THE JOB. IF YOU DON'T KNOW WHAT VALVE TO SPECIFY, ASK YOUR DISTRIBUTOR OR WRITE TO THE MANUFACTURER.

Iron body wedge gate valve

If you have a valve selection problem, write to us. As Kennedy makes a complete line of standard gate, globe, angle and check valves, you can be sure of receiving unbiased help. For full description of Kennedy valves, pipe fittings and fire hydrants, send for 240-page Kennedy Catalog.



Lift check valve

KENNEDY VALVES • PIPE FITTINGS • FIRE HYDRANTS

THE KENNEDY VALVE MFG. CO. • ELMIRA, N.Y.

Obituary

Walter L. Muzzey

Walter L. Muzzey, 67, president of the Proctor Paper Company, Lowell and Boston, Mass., died August 9 at the Lowell General Hospital. Mr. Muzzey was a 32nd Degree Mason and in addition to being a Past Master of William Sewell Gardner Lodge, Lowell, had headed a number of other bodies in both Scottish and York rites. He was a member of Massachusetts Consistory and of Aleppo Shrine. He was a member of the First Congregational Church. His wife is living.

Funeral services were held August 11 at the Saunders Funeral Home, Lowell. The Lowell and Boston offices of the company were closed that day out of respect to his memory.

James W. Chase

James W. Chase, aged 50, Neenah, Wis., manager of the dairy packaging sales department of the Menasha Products division of the Marathon Corporation at Menasha, Wis., died unexpectedly Monday evening, August 7. He was walking near his home when he collapsed. He was born in 1894 at Sioux City, Iowa, and was affiliated with the Menasha Printing and Carton Company from 1921 to 1927, when he moved to Boston, Mass. He returned to Menasha in 1940, to become manager of the dairy packaging sales department. Survivors are the widow and one daughter, Mary. Funeral services were conducted Thursday, August 10.

J. Rivers Adams

James Rivers Adams, Captain, U. S. Marine Corps Reserve was killed in action on Guam, according to advices just received from Southwest Pacific Headquarters. Captain Adams was born in Lynchburg, Va., July 12, 1910. A graduate of Virginia Military Institute in the Class of 1931, he was associated with Westvaco Chlorine Products Corporation during his entire business life, joining Westvaco at its South Charleston plant immediately upon leaving college. Captain Adams became manager of Westvaco's Carteret plant in 1936 and for the two years prior to joining the Marine Corps was manager of sales.

South Central Region Organizes

Representatives of the pulp, paper and paperboard industries in the South Central Region, comprising the states of Virginia, North Carolina, Tennessee, and West Virginia, met at Lynchburg, Va., recently and organized a Standing Industry Committee for the region. This and similar committees representing other regions of the United States will play an important part in implementing the activities of the National Council for Stream Improvement which is undertaking a broad program of research directed toward solution of the industries' waste utilization and disposal problems. Through the activities of such committees, the industrial waste disposal problems of the industries in each region will be presented for appraisal and the nature and direction of current research necessary to an ultimate solution will be determined.

The National Council for Stream Improvement, representing the bulk of the pulp, paper and paperboard industries in the entire United States, has undertaken a broad program looking toward solutions to all phases of waste problems involved through a balanced program of fundamental and applied research based on an evaluation of the industries' experience, an appraisal of water conditions, and a review of all prior research and development work recorded both here and abroad. A Multiple Fellowship at the Mellon Institute of Industrial Research has been established and began functioning on research problems on July 1, 1944. Research programs at other institutions in various regions of the country will be established as soon as the various problems have been appraised by the National Council and the Regional Committees.

Attending the meeting were representatives of the following companies: Columbian Paper Company, Bedford Pulp & Paper Company, Champion Paper & Fibre Company, The Mead Corporation, Chesapeake-Camp Corporation, Johns-Manville Corporation, North Carolina Pulp Company, Ecusta Paper Corporation, Carolina Paper Board Corporation, Halltown Paper Board Company, West Virginia Pulp & Paper Company, Manchester Board & Paper Company.

Hugh Camp of the Chesapeake-Camp Corporation was elected chairman of the Standing Regional Industry Committee for the South Central Region and Fred J. Doutt of Champion Paper and Fibre Company was elected vice-chairman and will represent the mills in the region in council affairs.

Following the organization meeting, the committee and industry representatives discussed common problems with engineers of the Tennessee Valley Authority, of the Potomac River Basin Authority, and of the Sanitary Engineering Divisions of the states concerned. Future cooperation between the industries and all of the agencies involved was discussed.

Power Saw Speeds Logging

Logging operations today with the manpower shortage a critical problem in the woods, is more dependent than ever upon the efficient use of mechanical equipment. The new Lombard electric chain power saw is reported as an efficient unit.

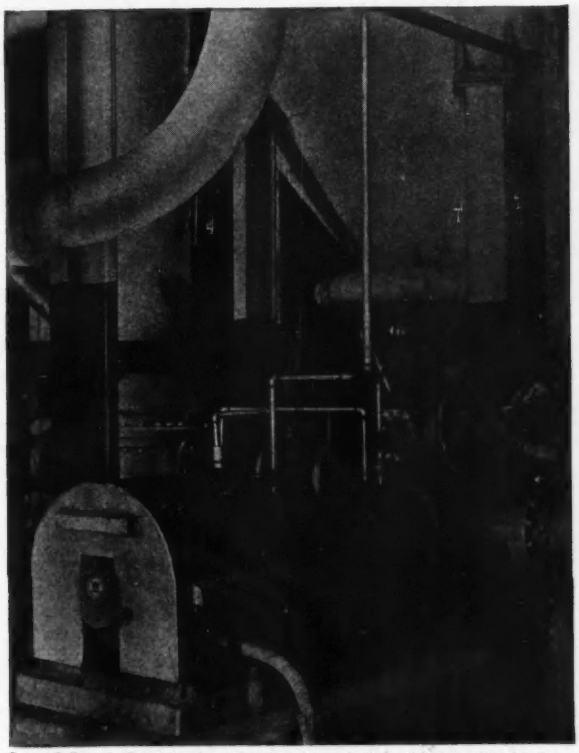
Some of the latest tests of the new interlocking chain saw reported are as follows: In a Maine wood-working plant a 40-inch cut-off chain saw, working beside a conveyor chain bringing up 17-inch maple beech and birch logs, made 304 cuts in 3½ hours, without crowding and could have made 100 additional cuts without resharpening. In a test on Staten Island, N. Y. last month, the chain saw went through seasoned, knotty, hard, dry oak dimensional timber, 23 to 24 inches wide and 10 inches thick, in an average time of three minutes.

The new Lombard chain saw was also being tested near Grafton, N. H. where a road to a mica mine is being cut through beech, rock maple, birch and pine woodland, the trees average 18 inches in diameter. The new saw went through this timber in from four to eight minutes, depending on the wood, including undercut.

At present, the only model saw available is a 3-phase, 60 cycle, 220 volt electric model. An air model is expected to be available in another month and a gasoline unit in the near future.

The new Lombard interlocking chain electric saw is manufactured by the Lombard Governor Corporation, Ashland, Mass.

PULP COSTS LOWERED WITH INDIRECT DIGESTER HEATING



One of four indirect heaters for digesters at the sulphate mill of a large midwestern lumber company.

Digester cooking of every ton of pulp requires approximately 3,600,000 BTU.

To effect greater efficiency in this operation, to increase yields and better product quality, Foster Wheeler designed and developed a system for indirect digester heating. Advantages of this cooking unit include:

1. Improved thermal efficiency by returning the condensate of the steam used to the boiler feedwater system.
2. No dilution of cooking solution in digester.
3. Less steam required in black liquor evaporation since spent liquor is more concentrated.
4. Increased production since it is possible to charge more chips and no space need be left for steam condensed in direct cooking. This condensate may occupy as much as 18 per cent of the volume of the digester.

Service records of plants now in operation show that indirect digester heating provides attractive savings over digesters heated by direct injection of steam.

FOSTER WHEELER CORPORATION, 165 BROADWAY, NEW YORK 6, N. Y.

FOSTER FW WHEELER

Paper Production for June

The following data cover all known mills and represent a continuation of the monthly statistics initiated in "Facts for Industry," series 24-2-1. For annual data and a description of the statistics, "Facts for Industry," series 24-1-2 should be consulted. All inquiries concerning these data should be addressed to the Bureau of Census, Washington 25, D. C.

	1944		
	June	May[1]	June 1943
All types	1,460,477	1,484,667	1,416,114 [2]
Newsprint	61,109	61,018	70,530
Groundwood papers	45,183	49,106	47,720
Printing	18,638	20,300	15,332 [3]
Specialties	26,545	28,806	32,388 [3]
Book papers	121,152	124,481	131,848
General printing	85,998	88,361	95,167 [3]
Converting papers	34,982	35,903	36,026
Other book papers	172	217	655
Fine papers	79,694	82,856	86,259
Writing papers	60,700	61,146	65,144 [3]
Cover and text	3,365	4,610	3,559
Reproduction	4,284	4,522	3,835 [3]
Bristols [4]	6,332	7,414	8,846 [3]
Thin papers	4,908	4,991	4,460
Other fine papers	105	173	415
Wrapping papers	166,928	163,281	155,897
Bag papers	31,054	29,133	39,851
Glassine	6,836	6,953	7,310
Greaseproof	2,526	1,954	2,246
Vegetable parchment	2,669	2,844	2,641
Converting papers	69,075	70,913	50,724 [3] [5]
Wrapping papers	54,768	51,484	53,125 [3] [6]
Multi-wall sack papers	33,291	36,007	25,463
Special industrial papers	22,449 [6]	22,141 [5]	16,206
Sanitary papers	69,010	69,942	69,570
Tissue papers	12,558	13,305	13,420
Absorbent papers	7,323	7,955	7,577
Building papers	73,999	75,729	70,222
Paperboard	767,781	778,846	721,392
Container board	372,996	378,290	331,043
Folding boxboard	175,571	178,292	175,113
Set-up boxboard	67,499	67,787	72,287
Cardboard	5,987	6,063	5,503
Building board	88,938	88,555	93,257
Miscellaneous other board	56,790	59,859	44,189
Tube stock	34,995	37,747	26,381

[1] Revised.
[2] Includes a small quantity of paper not classified by type.
[3] Data revised to conform with certain changes in paper and paperboard classifications, which became effective beginning January, 1944. For figures covering other months of 1943, see "Facts for Industry," Series 24-2-5, Table 2.
[4] Includes Government Postal Card Stock.
[5] Includes a small quantity of Special Industrial Papers having a basis weight of less than 100 pounds. Such paper was classified as Wrapping Paper prior to January, 1944.

The Cumulative Index

To the many thousands who have found *The Chemical Formulary* so helpful, a new, useful tool has now been made available in the form of The Cumulative Index.

This comprehensive index covers all the formulae included in the complete six volumes of *The Chemical Formulary*. With this handy book there is no need to search through all the six volumes to find what you want when you need it. The Cumulative Index indicates at a glance the volume and page number for each item in all six volumes. The material has been arranged in strict alphabetical order to facilitate quick reference. Numerous cross references will instantly lead the user to all possible subjects relating to formulae or processes which are of interest. It may be obtained direct from the publisher, Chemical Publishing Company, Inc., 26 Court street, Brooklyn 2, N. Y., or from your book dealer. It is $4.00 a copy.

As a time- and work-saver Volumes I, II, III, IV, V and VI of *The Chemical Formulary* are indispensable. They contain almost 4,000 pages of useful, tested formulae from every important industry. By having all six volumes you will have, at your finger-tips, an up-to-date formula reference library of commercial formulation. Each volume is $6.00.

Heads Lake States Experiment Station

Elwood L. Demmon, since 1928 director of the Southern Forest Experiment Station at New Orleans, La., has been named director of the Lake States Experiment Station at St. Paul, Minn., the Forest Service, U. S. Department of Agriculture, announced today.

He succeeds Dr. Raphael Zon, director of the Lake States Station since 1923, who retires from active duty next month after 43 years of continuous work with the Forest Service.

Mr. Demmon is a native of Indiana, but spent most of his early life in Grand Rapids, Mich. He was graduated from the University of Michigan, where he specialized in forestry, in 1914 with an A. B. degree. During the next sixteen months, he worked in a logging camp and sawmill in Oregon, was a field assistant on the Wallowa National Forest in that State, and a forest guard on the Medicine Bow National Forest in Wyoming. He returned to Michigan for graduate work, receiving a master's degree in forestry in 1916.

Entering the employ of a private rubber company, he spent the next eight years as forester for the company developing extensive rubber plantations in Sumatra, Dutch East Indies. Much of his time there was taken up with research into means of increasing rubber yields. He also spent several months investigating the possibilities for rubber culture in various countries of Central America and in Panama. His travels took him into many foreign countries, including two trips around the world.

In July, 1924, he re-entered forestry work in the United States with a temporary assignment at the Lake States Forest Experiment Station of which he has now been made director. The following March he was permanently assigned to the Southern Station, becoming director there in June, 1928.

He is a senior member of the Society of American Foresters, a Fellow of the American Association for the Advancement of Science, a past president of the New Orleans Academy of Sciences, and a member of many other scientific organizations. He is the author of numerous scientific articles on various phases of forestry and rubber culture.

The new director of the Southern Station, Charles A. Connaughton, was born on a national forest at Placerville, Idaho, and once worked as a grease boy on a log chute. A graduate of the University of Idaho with a degree in forestry, in 1930 he became a forest ranger on the Targhee National Forest, Idaho. Later, on leave of absence, he took a master's degree in forestry at Yale. He was assigned to the Intermountain Forest and Range Experiment Station with headquarters at Ogden, Utah, in 1931. He has been director of the Rocky Mountain Station at Fort Collins, Colo., since June 1938.

Texas Gulf Wins Fourth Time

The Texas Gulf Sulphur Company has won for the fourth time the Army-Navy Production Award for outstanding achievement in producing materials essential to the war effort. An additional White Star has therefore been added to the Army-Navy Production Award flag which was given to the Company on November 2nd, 1942. The announcement of the award was made by Robert P. Patterson, Under Secretary of War, during the last week in July.

"baby" your felts

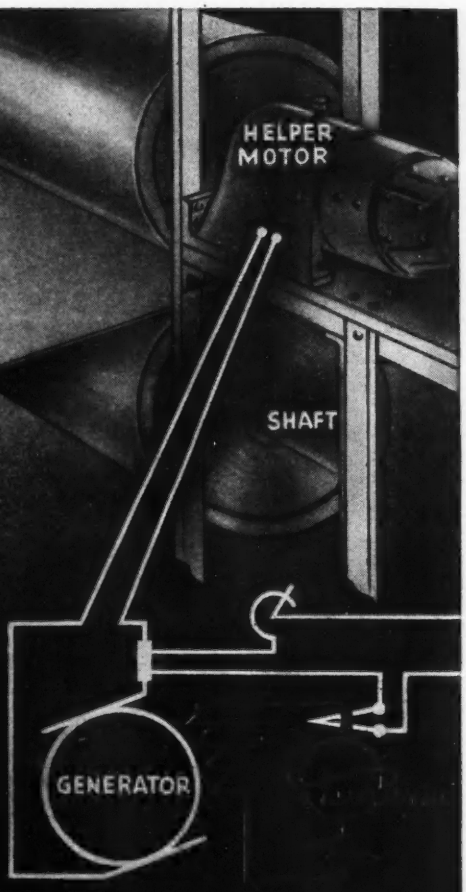
Simple, new, save-the-load control system, making use of the G-E amplidyne, keeps motor torque "on the beam" regardless of machine speed.

NEW, wide-range flexibility and simplicity have now been added to the service-proved advantages of G-E auxiliary drives for paper machines. Felts are more fully protected from strain and friction, draw is more accurately regulated, acceleration and deceleration are smoothly accomplished.

This basic improvement in helper-drive operation results from application of the instantly responsive G-E amplidyne to load regulation and speed control. Helper motors on any roll or group of rolls will furnish the torque to take all the drive load off the felts, regardless of operating speeds or speed changes. Or they can be controlled in accordance with the suction-box vacuum or other variables so as to counterbalance changes in load. They are equally applicable to mechanically driven or electrically driven machines, from board to tissue, *old or new.*

The simplicity of the new control system backs up the well-proved dependability of G-E drive motors and generators in paper-mill service.

Our application engineering combines the most advanced electrical methods with a broad background of practical experience on sectional drives, wet-end drives, and other paper-mill electrification problems. *General Electric Co., Schenectady 5, N.Y.*



TOP-ROLL DRIVE

By means of amplidyne control, a "helper" motor driving the top roll can relieve the friction load on the felts and wet sheet, without adding to the complexity of speed control. Motor torque is maintained at constant level, thus offsetting friction load, regardless of operating speed.

PAPER MILL DRIVES

GENERAL ELECTRIC

Buy all the BONDS you can—*and keep all you buy*

Westinghouse Man Promoted

The appointment of A. Morton Cooper as manager of the general mill section of the industrial department of Westinghouse was announced by C. B. Stainback, manager.

A native of Delaware County, Pennsylvania, Mr. Cooper attended the Wayne, Penna. public schools and was graduated from high school there. He came with the company in 1920 as a clerk and during the next four years attended, and finished, night school at Spring Garden and Drexel Institute. He received a

A. Morton Cooper

diploma from the former in electrical engineering and from the latter in business administration.

Mr. Cooper was transferred to the sales section shortly after finishing night school and in 1929 was appointed salesman in Philadelphia office handling Paper and Rubber Industries. In 1942 he was transferred to the general mills section at East Pittsburgh handling paper, textiles, rubber, leather, lumber, food, etc.

Mr. Cooper is a charter member, Delaware Valley Section, Technical Association Pulp & Paper Industry. He is also an active affiliate of American Pulp & Paper Mill Superintendents Association. He lives at 111 Batavia Road, Wilkinsburg, Pa., with his wife and two sons, A. Morton Jr., 18 and Jack 15. His outside interests include hunting, fishing, sailing and philately.

F. C. Huyck & Sons To Celebrate

[From our regular correspondent]

Rensselaer, N. Y., August 7, 1944—The mills of F. C. Huyck & Sons will celebrate the fiftieth anniversary of its founding here this fall. In 1870 there was a shortage of paper in this country and among the few concerns producing papermakers' felts was Henry Waterman & Co. but numerous selling problems arose and he decided to move to Oriskany where he established the firm of H. Waterbury & Co. Francis Huyck, his partner, elected to stay in this section and start his own plant for the manufacture of papermakers' felts. Shortly afterwards he formed a partnership with Chauncey Argersinger and the firm of Huyck & Argersinger was organized. This new venture was highly successful and the collaboration marked the change over to faster machine made products. In 1894 the entire mill was destroyed by fire but immediately Mr. Huyck purchased the present site here and began the erection of the nucleus of the present group of buildings. Later Mr. Argersinger retired from the firm and a new partnership was formed with his two sons, Edmund and John Huyck, under the name of F. C. Huyck & Sons. Under the guidance of the founder the business grew rapidly and in 1918 it was decided to establish a branch plant in Canada. A former felt mill was purchased at Arnprior, Ontario, and it is now incorporated with the main branch. The founder and his three sons have passed away but the business is being successfully carried on by Holden M. Ashby, chairman of the board. Other officers include Woolsey W. Weed, president; James L. Braman, vice president and treasurer; Francis H. Eldridge, vice president and general manager; Harry Eldridge, assistant secretary, and Charles Spencer, controller.

New Booklet on "Amioca"

Announcement has been made by the Technical Departments of American Maize-Products Company, National Starch Products Inc., and Stein, Hall & Co., Inc. that a booklet on "Amioca" has been jointly prepared and is now available for distribution. The booklet details the physical and chemical properties of this new domestic starch and lists many applications in which "Amioca" products appear of special interest.

The three companies participating in the industrial development of "Amioca" stress that many more uses may be found for it as the result of extensive field research and experimental work now in progress. Reports to date indicate that for certain purposes, it is superior to other types of starch and has great commercial possibilities.

The purpose of this new booklet, according to the sponsors, is to equip manufacturers, laboratories and chemists with the background information needed to visualize new uses for "Amioca" products, many of which are expected to represent entirely new fields of starch application.

While current supplies of the starch and its modified products are ample for commercial test runs and limited adaptation by industry, this year's enlarged planting program is expected to yield substantially greater quantities for 1945.

The attractive 16-page multi-colored booklet on "Amioca" contains a number of photographs, charts, photomicrographs, and tables of comparison with other industrial starches. Copies may be obtained without charge by addressing any of the three companies named above, and the assistance of their technical departments in appraising "Amioca" products for specific needs is likewise available.

To Manage Los Angeles Office

H. P. Westler has been appointed sales manager of the Western Division of Kimberly-Clark Corporation, with headquarters at the Los Angeles office, 510 West Sixth street, Los Angeles 14, Cal.

Mr. Westler started in the paper business with Ben Newhouse in Minneapolis, then moved to San Francisco to join Blake, Moffitt & Towne, as a salesman, and has been associated with them for a number of years. He later became sales manager of their printing paper department and for the last two years has been in charge of their mill department, as well.

MILITARY NEEDS INCREASING

(Continued from page 9)

military needs for the paper used in packaging thousands of items of equipment and supplies.

"The waste paper supply picture, like that of pulpwood, is more encouraging than a year ago, but collections are still well under actual needs, while inventories generally are at a minimum operating level.

"During the first half of 1944 waste paper receipts at the mills averaged 590,000 tons a month, compared with 505,000 tons a month in 1943. June mill receipts were 597,000 tons. Despite the increase in collections, inventories at the end of June were only slightly higher than at the close of 1943 and were about 250,000 tons under stocks at the end of 1942.

"The waste paper campaign goal, based on actual needs, is 667,000 tons a month. Thus far, through June the drive is 450,000 tons short of its 1944 objective, and in no month have collections reached the goal set by Donald M. Nelson, Chairman of the War Production Board.

"Even a sudden termination of the European war would not immediately be reflected in a curtailment of mill demands for pulpwood and waste paper.

"Pulpwood production, on the other hand, might be seriously reduced by the withdrawal of prisoners of war from the woods.

Dow Chemical Co. Changes

MIDLAND, Mich., Aug. 7, 1944—In the interest of expanded departmental operations, due to the development of many new plastic products, the following personnel changes in the Dow Chemical manager of plastics engineering. These additions to the plastic staff as well as transfers of personnel will be effective immediately, Mr. Dixon said.

At Midland, C. F. Cummins, formerly of the Chicago office, will have charge of plastic engineering activities in molding powders; R. J. Minbiole, formerly of the New York office will handle packaging materials. P. W. Simmons was also transferred from the New York office to handle protective coating materials. F. J. Gunn of the midland staff assumes the handling of plastic raw materials.

In the New York office, F. L. Brown will have charge of all plastics engineering activities for the Eastern territory. Mr. Brown was formerly located in the Cleveland office. Gage Olcott, recently with Bolta Company, will join the New York staff, assuming plastic engineering duties.

At Cleveland, E. R. Haines, formerly of the company's St. Louis office, will replace F. L. Brown.

At Chicago, J. E. Russell, formerly of the Midland office, will share with C. R. Webster the duties of the plastics engineering division there.

In the St. Louis office, E. E. Chamberlin, formerly a supervisor of plastics fabrication with Commercial Plastics' Midland branch, will replace Mr. E. R. Haines.

Salesmen Play Golf on August 23

Receiving a favorable response for reservations for the golf outing, the Salesmen's Association of the Paper Industry announces that this event will be held on Wednesday, August 23, at the Essex County Golf Club, West Orange, N. J.

Early reservations are requested by E. O. Merchant, secretary, 122 East 42nd street, New York.

these L's and T's give more "ELBOW ROOM"

When tight quarters turn piping jobs into jigsaw puzzles, prefabricated ARMCO Spiral Welded Pipe provides a money-saving solution.

This sturdy pipe is custom-built for each job. Tees, wyes and elbows are made to measure, and welded to straight pipe runs. This conserves space, simplifies installation and eliminates a pair of flanges at every bend.

Efficient operation is also assured. Armco pipe has high flow capacity and is easy to keep clean. The fewer flanges mean fewer joints and less chance for leaks.

Specify ARMCO Spiral Welded for wartime pipe replacements, and keep it in mind when you plan your post-war improvements. Armco pipe sizes range from 6 to 36 inches; wall thicknesses from 7/64 to ½-inch. For prices and more information just address The American Rolling Mill Company, Pipe Sales Division, 2711 Curtis Street, Middletown, Ohio.

ARMCO

Spiral Welded Pipe

Paper Industry to Cooperate for Safety

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 15, 1944—In order to conserve scarce manpower for heavy military and home front production schedules, the American paper and pulp industry will attempt to emulate the safety program of iron and steel. It becomes the second industry to join the U. S. Department of Labor's coordinated nationwide safety drive to reduce job accidents by 40 percent, the first being the meat industry.

"Paper and pulp has an accident frequency three times as high as the steel industry, which despite once hazardous operations has brought its accident frequency down to ten disabling injuries per million man hours worked," the Secretary of Labor said.

Labor Department to Coordinate Efforts

The interesting feature of this drive scheduled for October, November and December is that industry safety efforts will be coordinated by the Department of Labor with those of labor, insurance companies, the National Safety Council and other accident prevention agencies, the Federal Departments of Agriculture, Commerce, War Production Board, the U. S. Public Health Service and State Departments of Labor and Health.

Before the war the U. S. Department of Labor organized a Manpower Conservation Committee of over 600 trained safety engineers already employed in industry who donate 20% of their time to "safety servicing" smaller plants. The Department also has a small field force of full-time safety engineers. Servicing over 25,000 war plants in three years of wartime experience, these engineers enabled three-quarters of these plants to reduce their accident frequency materially.

This experience, added to growing scarcities of manpower, led the Department to organize these coordinated industry safety drives to concentrate the nation's safety resources all at one time on those industries which suffer from high accident frequencies. This prevents duplication of effort and pools safety "know-how" in the way that has enabled the steel industry to control its hazardous operations and establish an enviable safety record.

Paper Industry Will Receive Expert Advice

During the drive, the Nation's 900 paper and pulp mills will receive free safety consultation by the U. S. Labor Department's trained safety engineers or by field safety agents of the cooperating organizations. These agents will survey plant hazards and unsafe practices and recommend standard corrective measures developed during a generation of organized safety work. Assistance will be given in the development of sound safety organizations in each mill.

Safety training courses will be offered for supervisors, foremen, labor representatives and workers in engineering colleges throughout the country, in the mills and elsewhere. These courses will vary in length from ten hours of on-the-job worker instruction to the standard 96-hour basic training course given during the war to more than 50,000 key supervisors throughout the war industries. Each course will be geared to the needs of the group receiving instruction. Training aids in educational and promotional material to "sell safety" to supervisors and workers will also be made available.

Awards will be given at the end of the three months drive to those mills achieving a 40% reduction in accident frequency. Plans are underway to encourage plant managements and workers to continue their safety organization on a permanent basis.

Associations Participating in Conference

Participating in recent planning conferences in Washington were: the American Paper and Pulp Association, Fibre Box Association, American Pulp and Paper Mill Superintendents Association, International Brotherhood of Paper Makers, International Brotherhood of Pulp, Sulphite and Paper Mill Workers, U. S. Chamber of Commerce, National Safety Council, National Conservation Bureau, American Mutual Alliance, American Standards Association, American Red Cross, National Fire Protection Association, National Bureau of Standards, State Departments of Labor and Health, and the Federal agencies; U. S. Forestry Service, Department of Commerce, War Production Board, and the U. S. Department of Labor.

C. A. Dickerson Appointed Director

The appointment of C. A. Dickerson as Director of Paper and Paper Products Unit of the Office of Surplus Property in the Procurement Division of the U. S. Treasury Department was made today by Ernest L. Olrich, assistant to the Secretary. Mr. Dickerson is president and treasurer of the Sabin Robbins Paper Company with home offices in Cincinnati, Ohio.

Mr. Dickerson was first identified in the paper industry with the Kingsley Paper Company, Cleveland, Ohio. In 1917 he became sales manager in the Cleveland division of the Sabin Robbins Paper Company. He later held a similar position with the Chicago division of the same company, and in 1930 became general manager of the company.

Mr. Dickerson is a member of the Post War Planning Committee of the National Paper Trade Association.

Thomson Paper Mills Inc. Formed

[FROM OUR REGULAR CORRESPONDENT]

GREENWICH, N. Y., August 14, 1944—Incorporation papers were filed recently under state laws by the Thomson Paper Mills, Inc., showing the capital stock of 200 shares without par value. The company is to deal in wood pulp, paper materials and other products. The incorporators are Lucie M. Gueydam, Eugene Wollman and James G. Holland, all of New York City. The papers were filed by the firm of Ehrich, Royall, Wheeler & Holland.

Northwest Division Meets Sept. 8

The fall meeting of the Northwest Division of the American Pulp and Paper Mill Superintendent's Association will be held on September 8 and 9 at Hotel Duluth, Duluth, Minn.

A Neat Package

Today, when the "carriage trade" may be more accurately described as the "carry trade", attractive boxes are a must.

As color is frequently the only decoration, special care must be taken in dyeing the box-board.

H & M Pheno Black SGN Conc. is used extensively by board mills for producing the popular level grays and blacks and the soft, warm colors so desirable in box-making.

In the beater, on all types of fiber, Pheno Black SGN Conc. finds universal acceptance because of its direct dyeing action and its high degree of fastness to light, bleeding and rubbing.

Heller & Merz Department
CALCO CHEMICAL DIVISION
AMERICAN CYANAMID COMPANY
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Boston, Charlotte, Providence.

COLORS BY CALCO

Reports on Container Board Supply

Maximum production of much needed box board and container board, used in fiber boxes and containers, cannot be reached without additional labor, price relief and more raw materials, the Boxboard and Containerboard Industry Advisory Committees have advised the War Production Board, the WPB Paperboard Division reported late last week. These committees held a joint session with Paperboard Division officials in Washington recently.

The need for increased production of container board was stressed in view of the ever-growing demands for military and essential civilian packaging.

As allocations of some additional pulp were promised these industries, and assurances were given that waste paper collections were improving, emphasis was placed on the necessity of securing additional workers, Paperboard Division officials said.

Production of container board is now classed as an essential industry by the War Manpower Commission, and most mills have been able to secure an urgency rating for their labor. Nevertheless, they have been unable to maintain an adequate labor force, committeemen said.

Members of the industry reported that an increase of approximately 11 per cent in the number of workers in specific plants would result in increasing production of container board by about 14 per cent.

Paper board Division officials advised the industry members that these problems were under joint consideration by the War Production Board and the War Manpower Commission.

Questions of higher price ceilings as a factor to increase container board production will have to be taken up directly with the Office of Price Administration by firms that show financial hardship in their production of paper board, WPB officials said.

The committees presented a report to WPB, showing the factors necessary to increase the production of container board and stressing particularly the need for additional employes.

W. J. McClintock Jr. Is Reelected

At the annual meeting of the Central Division, National Paper Box Manufacturers Association, held this month in Harrisburg, Pa., William J. McClintock, Jr., of the McClintock Corporation, Harrisburg, was reelected chairman for the ensuing term. The new vice-chairman of the group is Daniel Huyett, of Standard Paper Box Manufacturing Company, Reading.

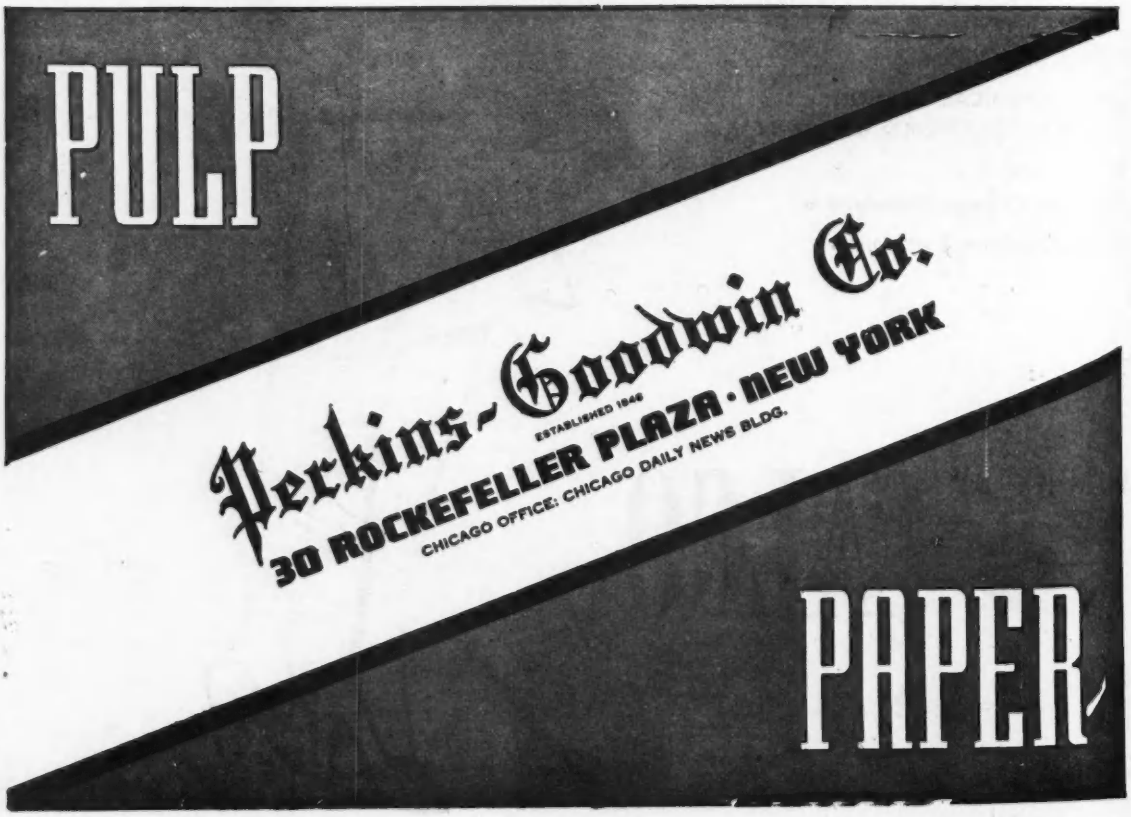
Members of the advisory board, chosen at the meeting, are Floyd C. Wheeler, of Bangor Box Factory, Bangor, Pa.; Henry L. Stortz, of Henry Schmidt Bro. Inc., Philadelphia; George W. Morrison, of Pottsville Paper Box Company, Inc., Pottsville, Pa. and Ed P. Franke, of George Franke & Sons, Inc., Baltimore.

Paper Mill Shipments Rise

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 16, 1944—June index of the value of paper mill shipments was 163 compared with 160 for May and 178 for June of last year taking an average month of 1930 at 100 according to the monthly industry survey of the Department of Commerce.

Index of the value of paper mill inventories for June was 135.4 compared with 136.9 for May and 139.2 in June of last year.



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DUST, FLY ASH, FUME, MIST & FOG

***from* GASES**

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Wood Experts to Meet

A conference on new developments in wood products will be held at the New York State College of Forestry, Syracuse University, October 6 and 7, according to an announcement by Chancellor William P. Tolley of the University. This will be a gathering of experts from wood-using industries, research institutions, the Army and the Navy who are engaged in the production or use of new wood products to meet the demands of war and are now planning for the postwar period.

Dr. Joseph S. Illick, acting dean of the New York State College of Forestry, states that the program now being prepared will include exhibits and demonstrations of recent developments in the field of wood products. It will also include talks and papers on outstanding achievements in their production by research institutions and the industries. Many of these new services of wood have contributed to the progress of the war and will materially benefit the social and business life of the future.

Dr. Illick says the conference will be concerned not only with these new materials of the mechanical and the chemical laboratories but with further refinements in serviceable wood products through research. Special demonstrations at the conference will indicate the possibilities of important future developments in the use of wood products.

Many of the leading wood-products industries will install and operate exhibits. These exhibits will be set up in the rotunda of Bray Hall and the library reading room of the Marshall Memorial Building. Committees have been organized and are now working on the program of speakers, the display of exhibits and the accommodations for representatives of the industries and Government agencies who will attend the conference.

The conference will emphasize developments in wood plastics, the use of synthetic resins in the glueing and laminating of wood, the use of electronics in the drying and laminating of wood and fire-resistant treatment of wood. A feature of the conference will be the inspection of the College pulp and paper mill in operation and a review of research projects in progress at the plant.

Restrict Paper Sacks

WASHINGTON, D. C., August 14, 1944—To assure an adequate supply of paper shipping sacks for packaging and for shipping certain essential products and materials, restrictions governing the manufacture and use of new sacks were promulgated today by the Paper Division of the War Production Board through amendments to Limitation Order L-279.

Starting with the allocation of kraft pulp, manufacturers of paper intended for making shipping sack paper and producers of paper sacks from kraft pulp are required to use such pulp for no other purpose, Burton A. Ford, Chief of the Paper Shipping Sack Section of the Paper Division, said.

Amendments to the order also restrict the use of this type of paper for purposes other than those listed in Appendix A. That list includes many agricultural and chemical products and pigments; minerals and building materials, as well as various essential miscellaneous items, all of which are packaged for storage and shipment in paper shipping sacks, Mr. Ford pointed out.

Commercial consumers who used sacks made of shipping-ack paper prior to issuance date of the amended order (August 8), may continue to use them for such purpose for 45 days.

Other restrictions cover asphalted paper (asphalt laminated, impregnated, coated or infused with asphalt or asphalted compounds), paraffined and moisture-proof paper when used in paper shipping sacks. These materials are used to protect chemically reactive and hygroscopic (moisture-absorbing) materials.

The allowable items listed in Schedule B include a number of minerals, chemicals, foods and seeds, as well as insecticides, fungicides, disinfectants, germicides, asphalt and certain hygroscopic types of cements.

Exceptions in the use of sacks containing these moisture-proof sheets are made when shipments are intended for the Armed Services or foreign export, and for use by the Foreign Economic Administration when shipped empty to the armed forces, it was stated.

To Review Customs Laws

WASHINGTON, D. C., August 2, 1944—The entire structure of customs laws is under review by the U. S. Tariff Commission, looking to recommendations to be made later for eliminating obsolete features, and perhaps tightening others, it has been learned. The recommendations will go to Congress in a series of reports. Due to the fact that interested groups will be asked for suggestions, and the detailed study to be made of the matter, it is said that the recommendations to Congress are still some time away.

You lift a 2,000 lb. load from the floor quickly and without strain by a pull of only 63 lbs. on the hand chain of a multiple gear Reading Chain Hoist. Even for hoists with the maximum capacity of 20 tons, a pull of only 170 lbs. on the chain is needed.

The high efficiency and speedy operation of the Reading Multiple Gear Chain Hoist are due to its spur gear design—in which a balanced train of gears operates in a bath of oil. Adequate lubrication of moving parts is also assured by the use of *sealed* ball bearings. Safe, easy hoisting is also assured by the self-adjusting brake that automatically takes up its own wear. The positive braking action simplifies hoisting and holds the load stationary at any point.

For help on hoisting problems either by use of chain hoists or electric hoists, write for "Modern Materials Handling Magic."

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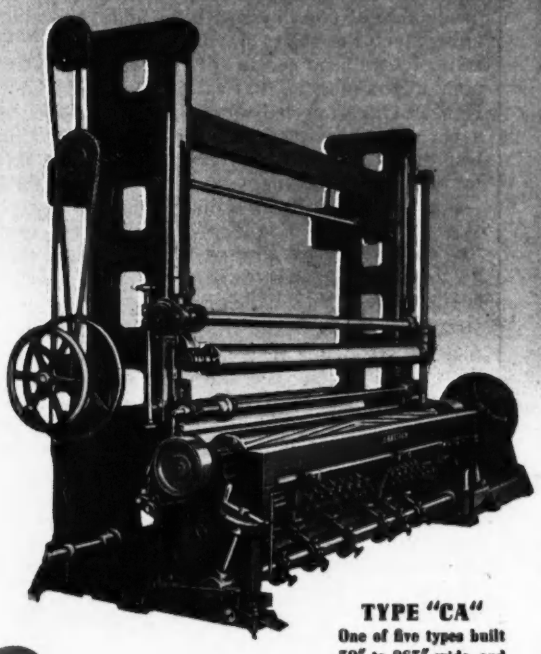
2113 ADAMS ST., READING, PA.

CHAIN HOISTS • ELECTRIC HOISTS • OVERHEAD TRAVELING CRANES

READING HOISTS

WRAPPING HOT AIR ... *in Paper*



TYPE "CA"
One of five types built 30" to 265" wide, and up. Speeds, 1500 to 3000 f.p.m.

Hot air ducts made of laminated paperboard have been developed, and approved by the Insurance Underwriters. Both inner and outer surfaces are lined with asbestos and a corrugated center improves the insulating properties. Evolved to save tin, this paper product may well continue to serve domestic heating systems.

Why not anticipate your slitting and winding requirements for expanding post-war production? We will be glad to discuss this with you, now.

SAMUEL M. LANGSTON COMPANY
CAMDEN, NEW JERSEY

Langston **Slitters and Roll Winders**

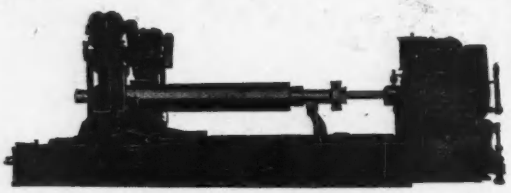
CONSIDER
...the Future

The rift in the war clouds shows at least a glimpse of blue. Yes, the storm over Europe may nearly be spent . . . and in not too many months the sun will shine again on a Pacific . . . peaceful as its name implies.

Perhaps it is not unwise to engage in a little postwar planning. Paper stocks are low . . . there is a pent-up demand for nearly every paper product. The back log of orders will flow through the plants best able to fill them.

Paper mills have had to "get by" with well worn equipment, but when the return of peak production necessitates top performance machinery, the mills that have foresightedly prepared, will naturally be able best to handle the rush of orders.

In war and peace LOBDELL has adequately met the demands of industry for 108 years. The LOBDELL line of staunchly built machinery for the paper and allied trades, gives reliable performance over a long period.



The leader of our line—the completely automatic Roll Grinder—grinds a perfect crown of any size on any length roll . . . it also refinishes perfectly the faces of used rolls. Most mills can profitably utilize a grinder in their own plants, thus making it unnecessary to transport rolls to and from an outside grinder.

LOBDELL has had years of experience in satisfactorily supplying the needs of leading mills . . . the facilities of our Engineers are available . . . the new LOBDELL catalog presents a detailed description of up-to-date machinery which will interest you . . . let us figure on your current and postwar needs—now.

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Built and sustained upon the rights to Free, Competitive, Private Enterprise guaranteed by the Constitution of the United States

Rolls • Calender Stacks • Roll Calipers • New Improved Roll Grinding Machines

Honor Cartoonist In Waste Paper Drive

Kansas City broke all previous city records and comparable Midwestern city records in its July Curbside Waste Paper Pick-Up Drive, according to Charles J. Epp, chairman of the Kansas City Salvage Committee. Mr. Epp spoke at a special luncheon of the Paper Salvage Committe, given in honor of S. J. Ray, nationally famous cartoonist of the *Kansas City Star*, July 14, at the Kansas City Advertising and Sales Executives' Club.

"We are giving this luncheon honoring our friend and cooperator, S. J. Ray, cartoonist for the Star," said Mr. Epp, "because his cartoon opening the drive was, in the unanimous opinion of this committee, the finest, most productive, hardest-selling cartoon we have seen in any of the nation's newspapers cooperating with the national paper salvage work.

"We have more than mere opinion on which to base this estimate of the power of Mr. Ray's cartoon classic—backed up as it was by the united effort of all the other cooperating publicity media.

"In the face of the fine results already turned in by the Kansas City Schools in their six monthly drives this year, while school was in session, this drive sponsored by the Region Paper Industry produced in two days more than twice the average monthly amount turned in by the schools and nearly half the combined school production in their entire six months.

"Our school results have been excellent in their production. So too have been results secured by other major cities in the Middle West. Let's see how our results compare with these neighboring friendly rivals, on a per pound per capita paper salvage production basis.

City	Last Drive	Population	Tons	Tons Per M. Pop.	Lbs. Per Capita
Kansas City, Mo.	July	400,000	330	2.08 tons	4.16 lbs.
Omaha, Nebr.	"	224,000	446	1.99 "	3.98 "
Wichita, Kas.	"	218,000	215	0.98 "	1.96 "
St. Louis, Mo.	March	816,000	400	0.49 "	.99 "
Chicago, Ill.	June	3,396,000	818	0.24 "	.48 "

"Now let's remember that our figure is the *net* production of two days, with the addition of no paper going over the scales on dates thereafter. There is some question on certain of the other figures on this point. However, be that as it may, we do know that Kansas City collected *more tons* than Chicago, with a per capita production exceeding that of Chicago's last drive by more than *eight times*. We do know we have the exceeding good fortune to lead the league —and this comparison is directly according to official War Production Board Salvage figures. And our figures too are for Kansas City, Missouri only, and do *not* include adjacent-city production which would further add to these results.

"We don't cite these figures to brag or to prove that we are better than our hard-working friends in these other cities. We cite them only as inspiration to ourselves and to all other cities in America, whose combined, united effort is necessary to bring the nation safely out of the national paper emergency.

"This July production is dramatic proof, in my opinion, that the last ton of waste paper is never turned in. No matter how excellent have been previous paper collection results, there is always more waste paper to collect. We had hundreds of examples of really *old* paper, magazines that had been held in homes for years, newspapers that were turning yellow in basements and attics.

"Adjutant C. C. Briggs of the Salvation Army tells me that their receipt of waste paper through their regular, normal collection service has increased, and

increased sharply during this week following our curb-side pick-up. This is directly opposite to the post-drive effect he had anticipated, and in his opinion, proves that the drive's powerful publicity brought about a universal and continuing interest in waste-paper collection which will continue to bear fruit in the weeks to come.

"Yes, we believe there are two important facts evident in this report. First, each successful drive does build a foundation for following drives—this July Curb-Side Pick-Up Drive following six highly successful monthly school production drives proves this fact. Secondly, it proves the strategic importance of united, well organized effort in which not just ten or twenty individuals put their shoulders to the organization wheel, but in which more than a hundred cooperators put their own particular technical skills in organization and publicity behind this drive.

"Our friend here, S. J. Ray, *Kansas City Star* cartoonist, is one of this large group, and so today, through him, we honor all cooperators and workers and urge their continued united effort in the four drives yet to come, the next of which is on August 26-27.

"Mr. Ray's cartoon, appearing in the *Kansas City Star* on July 6th at the opening of the drive's publicity was in the unanimous opinion of the Kansas City Paper Salvage Committee by far the best cartoon of the many we have seen in American newspapers publicizing paper salvage. Mr. Ray put Kansas City at work getting paper out on the curb. Each Kansas Citian saw his job in this cartoon. Even the family dog was showing, making his contribution to the drive.

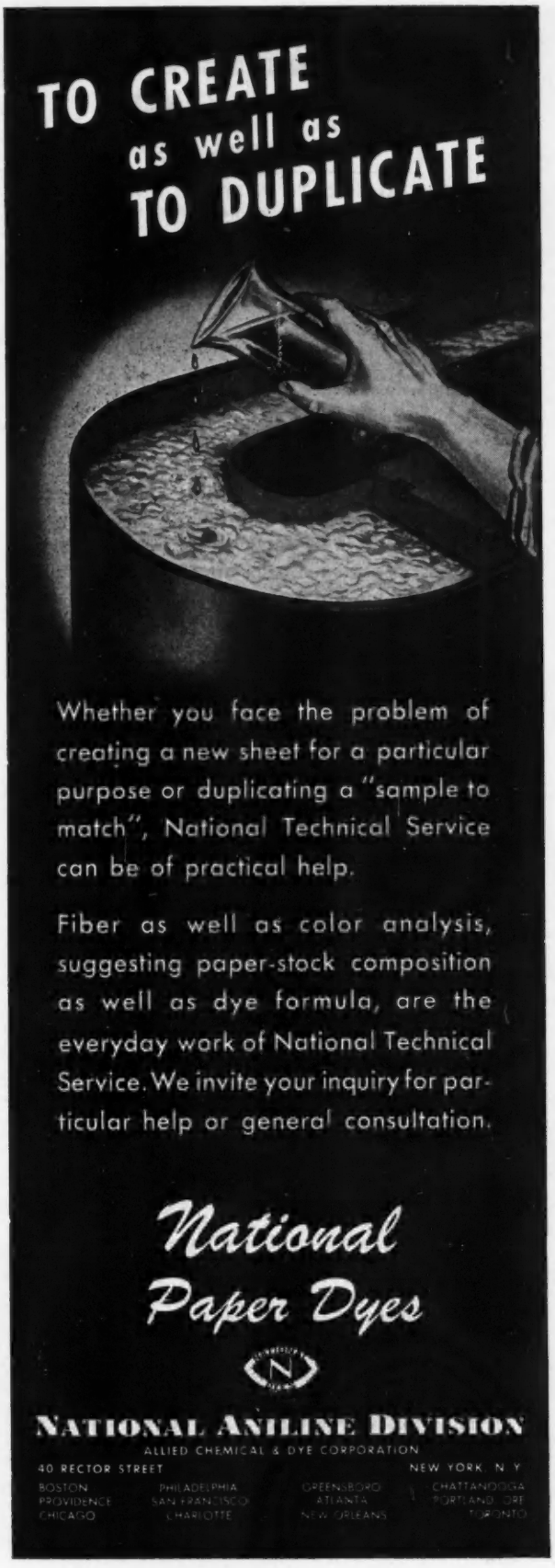
"Therefore, it is my privilege and honor at this time to extend the thanks of the city to Mr. Ray—and also to challenge each and every American City to bring forward a cartoon that will equal that of our own champion, 'Sil' Ray of the Star. We here and now nominate this cartoon as the nation's best example of the cartoonist's art, hard at work, getting in waste paper for the nation's war effort.

"Mr. Ray, you have our sincere thanks for contributing your cartoon masterpiece. Our thanks, too, go to all of those many, many busy people who did their jobs so outstandingly well in Kansas City's two day Waste Paper, curb-side pick-up on July 8th and 9th.

TAPPI Notes

The TAPPI Empire State Section will meet with the New York-Canadian Div. of the Superintendents' Association and the Niagara District group of the Canadian Technical Section at the Welland House, St. Catherines, Ont. on September 1 and 2, 1944.

The Executive Committee of the TAPPI New England Section met at the Hotel Kimball, Springfield, Mass. on Friday evening, August 11 and planned the program of meetings for the coming year. These dates are tentatively as follows: October 6-7, 1944 at the Wendell-Sheraton, Pittsfield, Mass.; November 17, 1944 at the Roger Smith Hotel, Holyoke, Mass.; December 15, 1944 at Boston; January 19, 1945 at Springfield; March 1945 at Fitchburg, Mass.; April 1945 at Holyoke or Springfield and May 1945 at Norwich, Conn. Those present were W. L. Foote, Chairman, W. E. Brawn, Pierre Drewsen, H. T. Barker, Werner Kaufmann, H. L. Mellen, L. B. Tucker, F. A. Strovink, H. U. Kiely, Fred Schneider and R. G. Macdonald.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COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

CHICAGO PROFESSIONAL PAPER GROUP—First Monday of each month except July and August at Chicago, Ill.

PULPWOOD SUPPLY

The trends in both the consumption and the inventory positions in the major pulpwood supply regions in the Pacific Northwest and in the Appalachian region, have been upward since the spring of this year. Receipts have since the first of March also indicated an upward trend. Total receipts of pulpwood for all five regions, computed on a rough wood basis by the Department of Commerce for the first five months of 1944 were 6,773,000 cords, compared with 5,482,000 cords in 1943, or an increase of 23.5%. In the same period, the South furnished 2,650,000 cords, compared with 2,441,000 cords in 1943, or 8.6% more; the Lake States, 1,346,000 cords, compared with 707,000 cords in 1943 or 90.4% more; the Northeast, 1,088,000 cords, compared with 1,039,000 cords in 1943, or 4.7% more; the Pacific Northwest, 1,047,000 cords, compared with 839,000 cords in 1943, or 23.8% more, and the Appalachian region, 642,000 cords, compared with 456,000 cords in 1943, or 40.8% more in the first five months of 1944 than in the same period in 1943.

In its comprehensive analysis of the pulpwood supply situation, the Department of Commerce states that, while pulpwood receipts in the aggregate were 23.5% above the same period in 1943 they were 5% below 1942. If this more favorable trend continued in June, the half-year receipts should approximate 8,000,000 cords, compared with a three-year average (1941, '42, '43) of 7,608,000 cords for the first six months of those years. To meet future demands upon the paper and paper board industry pulpwood receipts must be at least sustained at prevailing levels relative to the last three years. Although receipts in May 1944 were 26% higher than in May 1943, last year's receipts for the month were abnormally low. In the Northeast, depleted mill inventories caused an accelerated movement of rough wood from the woods to the mills this year without a corresponding increase in current pulpwood production in the woods. The pulpwood supply picture continues to be very critical in this region, even though receipts were about 3,000 cords higher than in April. Mill receipts in this region usually show a seasonal increase in June and July, and coupled with the recent agreement of Canada to supply more pulpwood, the gravity of the supply situation may diminish.

In its comment on consumption by mills, the Department reports states in part that, in 1942 and 1943, paper mill operations were sustained at a rate far in excess of that justified by raw material input. In these two years consumption exceeded new supply by about 1,700,000 tons of fibrous raw material. Wood pulp inventories dropped about 600,000 tons from the high of 1942 to the low of 1943, pulpwood inventory dropped about 1,200,000 cords from the third quarter of 1942 to the third quarter of 1943 (equal to about 720,000 tons of wood pulp), and waste paper inventory dropped about 350,000 tons. At the same time paper was being consumed from wholesalers' shelves and from converters' inventories at a rate far in excess of paper and paper board production. Currently, approximately 11% of production of trucks for domestic non-military use is being released for sawlog, pulpwood, and other timber products logging operations, the percentage being second only to release to agriculture. The truck situation is critical since all truck inventories are exhausted and present and future releases will be made direct from production. The demand is far greater than the supply. In addition, the Department report states that, the general railroad freight transportation situation continues to be critical despite a temporary lessening of pressure. Actually, necessary transportation requirements are being met and goods are being moved without serious congestion, but insufficient manpower, equipment, and facilities are resulting in slower movement than is desired.

No additional prisoners of war were allocated for pulpwood cutting in June, the report states, because of the heavy demands of agriculture. Consequently, requests from mills for additional war prisoners will have to wait until more prisoners are available. The opportunity will undoubtedly present itself within the next two or three months (August and September), when a substantial number are expected to arrive in this country and will be used to fill the pending allotments. The production per day of prisoners of war has increased considerably of late, owing to new measures adopted by the Army, such as raising the daily production quota, and to closer supervision by the mills.

In relation to the agreement reached with Canada the Department of Commerce reports that, as a result of conferences held in June with the Canadian Government to determine the quantity of "purchase pulpwood" produced in Canada, which was to be divided equally between Canada and the United States, this country will receive an additional 255,000 rough cords (East of the Rocky Mountains) during the remainder of 1944. This brings the total quantity of Canadian pulpwood authorized for shipment to the United States up to 1,505,000 cords for the current

calendar year. The original agreement called for a minimum of 1,250,000 rough cords each for Canada and the United States, with a revision upward should production of "purchase pulpwood" in Canada be in excess of 2,500,000 rough cords. The allocation of the additional 255,000 cords of Canadian pulpwood will be made by the War Production Board based upon most essential use, ownership of wood, and inventory position at United States mills. In addition to the upward revision on "purchase pulpwood," imports into the United States of approximately 65,000 cords (ex quota) of hardwood cut for fuelwood has been agreed upon. This will be used as pulpwood largely by soda pulp mills.

The Wood Pulp Situation

No relief from shortage of wood pulp appeared in the first half of 1944, according to F. G. Stevenot, president, Puget Sound Pulp and Timber Company. A slight increase in national production was almost entirely offset by a decrease in import balance. Domestic new supply was about 23,000 tons higher than in the first half of 1943, but 870,000 tons lower than in the first half of 1942.

National production totaled 4,630,000 tons in the first six months of 1944, in comparison with 4,547,000 tons in the first half of 1943, and 5,522,000 tons in the like period of 1942. These totals, plus import balances, provided new supply of 5,069,000 tons in the first six months of 1944, 5,045,000 tons in the 1943 period, and 5,939,000 tons in the first half of 1942.

New supply of chemical pulps showed a small gain over a year ago, but receipts of mechanical pulp (newsprint material) declined to the lowest point for the first half of any year since the start of the war. For six month periods ended June, new supply of mechanical pulp amounted to 874,000 tons in 1944, 894,000 tons in 1943, and 1,189,000 tons in 1942, while of chemical pulps new supply totaled 4,195,000 in the 1944 period, 4,151,000 in 1943, and 4,750,000 tons in 1942.

"One half of our entire paper output is now being consumed in packaging material for food machines and other materials shipped overseas," Mr. Stevenot declared. "Wood pulp is used in the manufacture of more than half of our smokeless powder. Such large diversion of pulp and its products to military uses shows clearly the reason for shortage of paper for civilian uses, and emphasizes the necessity of conserving our supplies."

Low Water Hampers Production

Speculation in regard to pulpwood supplies continues to harass pulp and paper producers. The continuance of hot, dry weather has resulted in the log-driving season being only partially successful in most regions east of the Great Lakes, and there is no hope now of getting large quantities of stranded pulpwood down to the mills before the fall rains, if then. The outlook at present is that the newsprint industry can continue to ship the 200,000 tons of newsprint per month which it has undertaken to supply to the United States until the end of the third quarter of the year, but whether it can ship the full amount in the fourth quarter is problematical.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
July 1	89.5	July 3	77.4
July 8 (Holiday July 4)	53.8	July 10	66.2
July 15	91.1	July 17	90.2
July 22	91.3	July 24	90.1
July 29	92.7	July 31	90.8
Aug. 5	*90.7*	Aug. 7	89.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3
1944	89.6	89.6	90.1	89.5	90.9	92.6	*81.7*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
Year	91.0	88.3	89.6	89.6	82.0	87.8
1944	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date	87.8	67.9	78.6	86.9	93.6	95.2	87.8	*89.2*
Year Average	79.8	71.5	83.4	85.6	97.4	90.4	87.8	

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	96	96	96	*85*	..	..	..	..	..	..

Week ending July 1, 1944—95
Week ending July 8, 1944—60
Week ending July 15, 1944—91
Week ending July 22, 1944—94
Week ending July 29, 1944—96
Week ending Aug. 5, 1944—*96*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Speculate on Scandinavian Pulp

TORONTO, Ont., August 14, 1944—The competitive position of the Scandinavian countries after the war and the probable effects on Canadian pulp and paper interests continues to be discussed here with interest. Assuming that the war must come to a conclusion within a comparatively short time now, holders of Canadian pulp and paper securities are more than usually interested in their holdings. The Montreal correspondent of *The Financial Post*, Toronto, thinks he can detect a more complacent feeling regarding Scandinavian competition after the war. He writes that the nervousness about the possible competitive threat of Scandinavian pulp and paper mills to the Canadian industry, once the war is over, has dwindled considerably, and proceeds to state that enemy activity in Norway and Finland has caused damage, and it may require some time before the forest industries of these countries can get re-established as any sort of competitive threat. When this suggestion was made to a Toronto man interested in the pulp and paper stocks, his reply was: "Don't you believe it. No doubt the Germans have done plenty of damage in both Finland and Norway, but very little that is going to impede the pulp and paper people there or keep them from resuming their old trade relations just as soon as they have a chance. Respecting Sweden, the same correspondent says that that country's pulp and paper industry hasn't been weakened to any great extent, although there has been a heavy cut of timber for fuel, due to the failure of Germany to deliver coal, but that Sweden has come to the conclusion that it cannot hope to get back more than a part of its pre-war markets for pulp and paper, due to the advances made by companies in the United States and Canada, and has been giving close attention to developing further new uses for pulp.

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122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Cutting Wedge for Sampling Wet Lap Pulp

By W. O. Manor [1]

Because the wedge method for sampling lap pulp does not specify the manner by which the specimen is to be cut, it has been done in any number of ways dependent on the preference of the operator. It has been the usual practice to use an axe or a knife but this results in a sample that, at best, only approximates a standard although it is quite important that a standard specimen be obtained since the moisture in hydraulic pressed laps is not uniformly distributed. However by using a cutter such as that shown in Fig. 1 a more suitable sample may be secured and at the same time the process of sampling can be made much easier.

Details of the construction of the template are shown in Figs. 2 and 3. The base piece, which is mounted on the oak board, consists of a steel casting built to conform to the 9° cutting wedge. To the steel casting are fastened two cutting edges by means of stud bolts. These knives, of course, should be made of high carbon tool steel—hard and tough but not brittle.

The weight of the particular wedge which is in use is 16 pounds but if desired the weight of the tool can probably be reduced by making the base piece out of steel framework rather than the solid casting.

FIG. 1
Cutting Wedge (9°) For Sampling Wet Lap Pulp

In cutting samples by this method, the wedge is laid on the floor with the knives up and the pulp slabs to be sampled are then placed in their proper position across the two cutting edges. The sampler then cuts the wedge by using a 3 or 4 pound wooden mallet, later removing the cut sample from the template by means of a screw driver or some such thin lever.

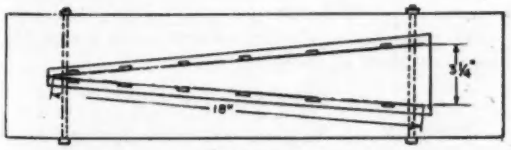

FIG. 2
Plan of Cutting Wedge

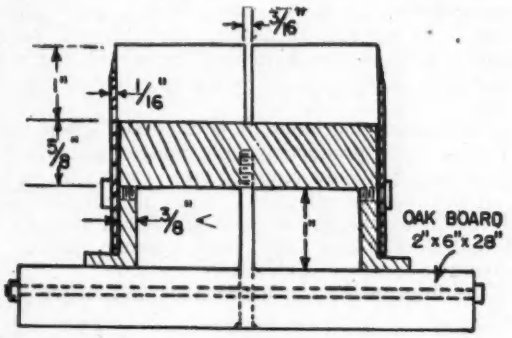

FIG. 3
Elevation of Cutting Wedge from Large End

This wedge has been in use at our plant for quite a number of years and but for the occasional sharpening of the knives, no upkeep has been required. Because of its simplicity, the tool can be constructed in the shop of any mill that is interested in using it.

[1] Member TAPPI; Chief Chemist, Consolidated Paper Co., Monroe, Mich.

July Newsprint Statistics

Production of newsprint in Canada during July 1944 amounted to 244,406 tons and shipments to 249,979 tons, according to the News Print Service Bureau. Production in the United States was 59,875 tons and shipments 59,946 tons. The output in Newfoundland was 21,802 tons and shipments were 29,979 tons making a total North American production of 326,083 tons and shipments of 339,904 tons. Total production in July 1943 was 354,958 tons and shipments were 380,778 tons. There was one working day less in July 1944 than in July 1943.

The Canadian mills produced 18,852 tons more in the first seven months of 1944 than in the first seven months of 1943, which was an increase of one and one tenth percent. The output in the United States was 68,439 tons or fourteen and two tenths percent less than in the first seven months of 1943; in Newfoundland production was 30,870 tons or twenty-six and two tenths percent more, making a net decrease of 18,717 tons, or eight tenths of one percent less than in the first seven months of 1943.

Stocks of news print paper at the end of July were 70,455 tons at Canadian mills, 7,303 tons at United States mills, and 39,377 tons at Newfoundland mills, making a combined total of 117,135 tons compared with 130,956 tons on June 30, 1944, and 116,728 tons at the end of July 1943.

Post-War Cost Reductions*

By Sanford E. Thompson[1]

Abstract

By the application of manufacturing control, the paper industry has the opportunity to increase production, cut down waste, and lower costs using existing machinery. This involves the establishment and technical control of quality standards, the use of time studies, and the development of an incentive system.

The paper industry is in an unique position for post-war business. Its equipment, except for obsolescence, will be ready for domestic orders without reconversion. On the other hand, if price ceilings are to be maintained, as they probably will be to a considerable degree, high wage rates and scarce raw materials will require lowest possible production costs.

While new machines of latest design open a field for increased production with reduced cost, their acquirement not only requires large capital investment but involves, usually, time to manufacture. Therefore, immediate gains are best offered through internal developments that will improve quality, increase production, and reduce costs.

Leading the way to lower costs and larger profits are:

1. Technical control for fixing technical standards.
2. Utilization of the technical standards in processing.
3. Control of density throughout all wet processes.
4. Determination of time standards of performance.
5. Utilization of time standards.
6. Control of production, based on time standards.
7. Development of incentives, either financial or non-financial, for quality and production.
8. Budgeting of indirect labor and maintenance.
9. Sales promotion through market analysis.

In point of approach the paper and pulp industry is different from other industries, except in certain finishing and converting operations, in that better quality is coincident with lower cost. Thus, in the manufacture of sulphite pulp, uniformity in cooking, in consistency in process, and in bleaching, is the key to the production of a sulphite fiber of greatest value for paper or other uses, while this uniformity tends to reduce actual production cost, because of greater yield and higher strength. In paper manufacture the amount of waste, broke, and seconds is inversely proportional to the uniformity of quality of furnish and of the stock through the processes.

It is for these reasons that, while in most industries speed of production comes first with inspection to guard quality, in papermaking, except in certain mechanical conversion operations, uniformity of quality should be the line of approach to high production and reduced cost.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

[1] Member TAPPI; President, The Thompson & Lichtner Co., Inc., Boston, Mass.

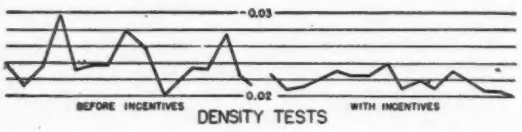

FIG. 1

Increase in Uniformity Through Maintenance of Standards

Technical Control

Establishment of technical control in paper making during the last twenty years has been one of the outstanding developments, at least equal in importance to the progress in machines and equipment. But there is lacking, in the processing operations of a vast number of mills, a proper maintenance of these standards. It is one thing to establish standards of consistency, weight, moisture, cleanliness, and other qualities. It is quite another thing to establish a control throughout the processing that will require the *maintenance* of the standards instead of simply recording the attainments as they accumulate and criticizing the operator after the event.

Through greater uniformity the uncertainties are reduced so that less allowance need be made in standard limits. It is thus frequently possible to use cheaper raw material or to use larger proportions of the cheaper raw stock in the furnishes. In one case some $20,000 per year was saved by more accurate standards and tests of amount of moisture in the rag stock put in the beaters.

Density and Weight

In papermaking, in most of the operations, no one factor enters more directly than the amount of water in the stock or paper. While nowadays density of stock in many operations is subject to automatic control, the chart, Fig. 1, shows the improvement in uniformity that can be attained by personal control based on individual judgment of the operative.

In a finished paper the percentage of moisture is important not only from the standpoint of quality but also from the standpoint of profit. In paper sold by the pound a relatively high moisture content consistent with the specifications means that just so much more money is paid for a lot of paper.

Now a customer likes uniformity and prefers a paper of constant moisture to one where different lots or different parts of the same lot vary appreciably. It is perfectly legitimate, therefore, to maintain the average moisture in the upper limits of the specifications. One-half per cent in additional moisture means that for $1000 worth of paper sold there will be $5.00 extra profit.

If paper is sold by the ream the weight element is important. Here again the customer prefers a uniform paper just within the standard weight rather than with the variation that is so common and so annoying to the user. A small percentage reduction in average ream weight means just so much additional profit. In one plant, a very fine one, the control of this one factor of weight resulted in additional profit gain of some $15,000 per year while, because of greater uniformity, the paper was more acceptable to customers than previously.

Time Standards

Knowledge of the time required for the various operations and runs is essential not only for expediting the individual operations but also as a prime factor in production control and in cost estimating. Time study with a stop watch of operations in finish-

ing and converting and in the various phases of mechanical and hand labor is the only accurate means of determining time standards that are fair to both operatives and management.

Production Control

To keep everyone busy, to get orders out on time, to govern the sequence of operations and of jobs, production control requires a definite central authority of one or more persons who will govern the sequences of lots and jobs, and in each department a specially designated person who will see that the procedures are carried out. While most of the best managed mills have well established production control, in many cases too much is left to departmental foremen or to verbal conferences.

Sales Promotion

The dislocations of normal marketing channels caused by the war are so extensive that most manufacturers will materially benefit their profit position through a careful analysis of markets and study of sales programs. Existing products should be related to the facts obtained from the market research and the line revised where new needs appear. The question "What to sell?" should be followed by "Where to sell it?" and "How to sell it?" Above all get the facts of your market before the facts get you.

Incentives

Financial incentives, properly established, give a man or woman an inducement to do their best work by providing an interest in a definite goal as giving them more money. Nonfinancial incentives, namely, the establishment of standards of accomplishment, while less effective than financial, do provide definite goals which, followed up by individual or group records of accomplishment, result in giving an interest, in some cases competitive, which increase production or improve quality, or both. Incentives, if properly worked out and introduced, result in higher quality of product than with day work, because the attainment of the required quality is a factor in the incentive.

Fundamental principles which should be observed in developing incentives in the making department of a paper mill may be summarized:

1. They should include quality as predominating over the production factor.
2. They should reward operatives who are responsible for the qualities required; e.g., the beater men may be included in the group with the machine tenders.
3. They should be set only after standards have been fixed for the various elements of quality and production.
4. They may be made so as to provide competition between tours.

The most important savings are due to the greater uniformity of quality which reduces defects with consequently fewer returns and complaints. Actual dollar savings, however, which should far and away exceed the most of incentive payments, consist chiefly in saving in cost of materials and supplies.

Economy in the making of paper is variously effected by: (1) increasing speed of paper machines; (2) increasing deckle width; (3) reducing the number and lengths of shut-downs; (4) reducing cost of raw materials; (5) reducing cost of supplies such as wires and felts; (6) reducing indirect labor.

The speeds of paper machines in turn are by no means arbitrary figures but are governed not simply by the "formation" of the paper and requirements for weight, moisture, etc., but also by the character and uniformity of the stock which comes to the machine.

It is found in practice that the most satisfactory incentive in the paper making departments is a reward to the group of operatives who are responsible for the production and for the various factors of quality such as weight, strength, moisture, thickness, etc. The make-up of the group depends upon local conditions. Sometimes a group may consist of the paper machine men and beater men, and perhaps others whose work affects the quality. As in pulp making, the first requirement is to develop standards of quality and production, arrange for routine tests, and then fix the incentives. In one case, that of a mill which has the reputation of being one of the finest in the country, the very high output already attained was increased over 10% through more accurate maintenance of the standards of quality of stock and paper. Part of this increase was due to reduction in number of shut-downs because of greater uniformity of stock.

One of the large items of cost in a paper mill is the cost of the felts and wires. It has been found possible to introduce an incentive for reduction in cost of these per ton of paper with a resulting saving of some 20% in annual cost, and with no detriment to the quality of the paper. The reward may be paid chiefly to the men directly responsible for changes with definite qualification to avoid the tendency to make the life of the clothing too long.

In finishing paper and in converting operations that have been on day work with no incentive, it is usually possible to reduce labor cost from ¼ to ⅓ and at the same time to pay added incentives for production and quality. This means large increases in unit production. In some operations the per cent of waste can be cut down ⅓ to ⅔. These seem large figures, but they represent actual results in different mills. To do this, however, it is usually necessary to improve the methods of operating rather than to "speed up." In every case the required quality must and can be maintained.

Indirect Labor

When the volume of production is increasing there is always a tendency to increase indirect labor even faster than direct. And when business is going down there is the tendency to hold unduly onto the indirect personnel both in shop and office.

In many cases a financial incentive for direct labor is impracticable because the operations are so varied as to require an excessive time in setting rates and maintaining them. The simplest plan in such cases is the "indirect labor budget" which sets a definite goal in accomplishment and in the personnel required to perform it. It sets, in others words, a "mark to shoot at" which can be maintained by the foreman. In all cases known to the writer and including many of the best managed mills, it has been found possible to reduce indirect labor from 15 to 25%, through indirect labor budgets.

In general the paper industry can make marked improvements in the maintenance of uniform quality and in reducing the cost of manufacture through the thorough scientific analysis of all operating factors. All too frequently such investigations are not made with sufficient detailed accuracy to disclose the true operating conditions and the means of their improvement. If the paper manufacturers will get all the facts, will measure them accurately, and develop corrections with equal care, then very seldom will the results fail to repay the study many times over in improved quality and lowered costs.

The Role of Alumina in the Mechanism of Rosin Sizing*

By John C. Redd[1]

Abstract

An investigation of the variables affecting the precipitation of alumina has been carried out with reference to the adsorptive power of the alumina for arsenious oxide. The results of this study were correlated with the ability of precipitated alumina to form colloidal sols and with the ability of the precipitate to develop sizing in a pulp-size system.

The results of the investigation on precipitated alumina were extended to the development of a method for the formation of colloidal alumina sols, whose activity was studied by their ability to precipitate a colloidal system of oppositely charged particles—namely, Prosize.

The effect of alum, precipitated alumina, and colloidal alumina sols was studied in sizing systems.

The use of colloidal alumina sols has presented a method of studying alumina as an independent variable in the sizing reaction. The results obtained have further clarified several of the problems of the rosin sizing action, and have revealed hitherto unknown factors in the mechanism of rosin sizing.

The extensive literature on rosin sizing has been summarized so many times and such reviews are so readily accessible that it is unnecessary to review it again. A survey of the field shows the need for new data on the behavior of colloidal alumina and certain of the variables associated with it as they relate to rosin sizing. In the present study, an attempt is made to relate the influence of aluminum oxide on rosin sizing in terms of the colloidal characteristics of the alumina.

The implications of these data in relation to water purification and other technical processes in which colloidal alumina is utilized will be apparent.

Materials and Methods

The analyses of the aluminum salts which were used were carried out by standard methods. The aluminum was determined by precipitation as the hydroxide in the presence of excess ammonium chloride. The sulphate was determined by the gravimetric precipitation with barium chloride. The chloride was determined by Mohr's method.

It is known that, in aluminum salts, the ratios of aluminum oxide to the acid radicals do not stand as whole numbers. The analyses for aluminum sulphate and aluminum chloride of these salts, in solution, showed the following results: Aluminum chloride, 1.0431 *N* with respect to aluminum and 1.0000 *N* with respect to chloride; the aluminum sulphate was 1.0496 *N* with respect to aluminum and 1.0000 *N* with respect to sulphate.

All pH measurements were made with a Cameron pH meter. All results given in the presentation of data are within 0.05 pH units unless otherwise stated.

The "aluminon" test was used to detect the presence of aluminum ions and was performed according to the procedure described by Treadwell *(1)*.

Prosize was prepared by soaking alpha protein in water for 0.5 hour. This protein was then added up to 15% to a 3% (15% free) rosin size which had been heated to 60° C. Stirring rapidly, a quantity of boric acid, equivalent to 15% of the rosin weight, was added. Nine liters of size were prepared in this manner.

To prepare the 30% free rosin size, 1 liter of tap water was heated to boiling, 25.2 grams of sodium carbonate added, followed by 200 grams of powdered Nelio rosin. The Nelio rosin had a saponification number of 180 and contained 8.7% unsaponifiable matter.

In all procedures, except where otherwise specified, distilled water was used.

The pulp used in the sizing studies was obtained as a dry lap, unbleached sulphite. Air dry samples (390 grams, equivalent to 360 grams of moisture-free pulp) were soaked in tap water for 1 hour. The pulp was then thoroughly disintegrated by stirring with a Lightin' mixer. It was then diluted to 23 liters and slushed in an experimental beater for 5 minutes. It was beaten to a freeness of 670, pressed to 20% consistency, and resuspended in softened water. It was pressed again, shredded, and stored in an air-tight container.

The sheets for the study of sizing efficiencies were prepared on the Noble-Wood sheet machine. The procedure outlined below was followed in all experiments, except in certain cases where modifications had to be made. These changes are noted as they occur in the presentation of the data.

An amount of stock equivalent to 15 grams of moisture-free pulp was weighed out and diluted to to 2% consistency with water which had been softened by the sodium zeolite-hydrogen zeolite process. The size solution was added and the mixture was stirred for 15 minutes with a Lightin' mixer.

At the end of the initial 15-minute stirring period, the required amounts of alum or alumina were added, and the pH adjusted to the specified value. The stirring was continued for an additional 10 minutes.

A portion of the sized stock equivalent to 75 grams of moisture-free pulp was diluted to a total volume of 30 liters, and the required amount of alum or alumina was added. After stirring this mixture for 10 minutes, it was filtered through the sheet mold. The stock collected on the wire was discarded, and the white water was retained in the system for dilution of the stock from which the handsheets were made. Five and one-half liters of the white water were added to 1 liter of the sized stock. This gives a pulp suspension of such a consistency that 850 ml. of it will give a sheet weighing 2.5 grams when air dry.

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The handsheets which were formed on the wire were covered with a blotter, placed between press felts, and run through press rolls; using clean blotters, the pressing operation was repeated. This gives a sheet of a consistency around 33%.

The sheet, which is held between the two blotters, was dried for 12.5 minutes on a drum drier at 5.5 pounds steam pressure. After drying, the sheets were removed from the blotters and placed in a humidity room at 70°C. and a relative humidity of 65%. They were allowed to remain there for at least 24 hours before being tested.

The sheets were tested for their sizing strength by use of the Currier size tester and by use of the fluorescent size tester *(2)*.

The bursting strength of the sheets was determined by TAPPI Standard T 403 m, and the tearing strength by TAPPI Standard T 414 m-42. The sheets were aged for 48 hours at 100°C. and replaced in the humidity room for 2 days before repeating the strength tests.

Due to an unfortunate circumstance, the sheets which were aged in this manner for the purpose of testing the effect of aging on the sizing strength were accidentally charred by excessive heating. Although only a fraction of the sheets was capable of being tested, the indications are that sizing had improved with aging.

The ash determinations were made by igniting the accurately weighed sheets in a muffle furnace and weighing the residue. An ash determination was run on the untreated pulp, and this amount was subtracted from the total ash of the treated sheets to give the percentage of ash, as reported, on the moisture-free sheets.

Adsorptive Power of Precipitated Alumina

The effect of the conditions under which a precipitation of a chemical compound takes place is of first importance in describing the nature of the precipitate. In order to characterize precipitated aluminum hydroxide in a manner which would enable it to be studied with respect to its probable action in the sizing system, as well as to determine its electrostatic nature, the adsorptive power of alumina for arsenious oxide was chosen as the most suitable method, and was studied under various conditions. This procedure was used by Lockemann and Raucke *(3)* and adapted by Yoe *(4)* and Sen *(5)*.

For the purpose of this presentation it is unnecessary to give the details of the experimental results from which the following conclusions were drawn:

The adsorption of arsenious oxide from its solution by freshly precipitated alumina is rapid at first and decreases gradually to a constant value within 48 hours.

As the freshly precipitated alumina is allowed to age in its mother liquor, it loses its ability to adsorb arsenious oxide.

The degree of agitation which takes place during the precipitation of alumina does not affect its adsorptive power for arsenious oxide.

The faster the rate of addition of alkali solutions to alumina salt solutions, the greater the adsorptive power of the alumina.

The lower the temperature at which the alumina is precipitated, the greater its adsorptive power for arsenious oxide.

The higher the pH at which alumina is precipitated, the greater the adsorptive power for arsenious oxide.

Alumina which is precipitated in the presence of the sulphate ion has a smaller adsorptive power for arsenious oxide than that precipitated in the presence of the chloride ion.

Peptization of Precipitated Alumina and the Colloidal Activity of the Resulting Sols

Again it is not necessary to report the experimental methods and results; the work led to the following conclusions:

The higher the temperature at which alumina is precipitated from its acid or basic salts, the less active the colloidal sol prepared from that alumina.

The lower the concentration of the solution of aluminum salts from which alumina is precipitated, the more active the colloidal sol prepared from that alumina.

When alumina is precipitated from aluminum sulphate, the higher pH of precipitation produces the more active colloidal sol of that alumina. However, if the alumina is precipitated from aluminum chloride, the higher pH of precipitation produces the less active colloidal sol of that alumina.

The lower the temperature of precipitation and the more dilute the solution from which the alumina is precipitated, the more voluminous and the bluer the precipitate.

The work has established a method by which activated alumina sols can be prepared.

Effect of Alum, Precipitate Alumina, and Colloidal Sols of Alumina in the Sizing System

The mechanism of the effect of alumina in the sizing action of pulp by rosin has never been fully described. It was hoped that, by applying to the sizing system some of the effects which have been observed for alumina and alumina sols, a better understanding of the action of this agent would be obtained.

An alumina sol was prepared by precipitating alumina from 4 grams of sodium aluminate in 3 liters of water by the addition of alum until a pH of 9.00 was reached. The system was diluted to a total volume of 18 liters and, after the floc had settled, the supernatant liquor was removed and replaced with fresh water. This washing was continued until the floc was free of sulphate ions. After removal of the last supernatant liquor, the floc was heated to 60°C. with rapid stirring. A small quantity of aluminum chloride was added which caused the precipitate to peptize. This is designated Sol 1.

Another alumina sol was prepared in the same manner, except that 10% aluminum chloride solution was added to the sodium aluminate to give a pH of 5.20. The floc was washed only once. On heating the floc and stirring rapidly, peptization occurred. This is designated Sol 2.

The concentration of the first sol was 0.0702 gram of alumina per 100 ml.; that of the second sol was 0.1648 grams of alumina per 100 ml. Based on chemical calculations, the analyses of the first sol showed that the amount of chloride present was equal to 6.6% of the chloride necessary to convert all of the alumina to aluminum chloride, whereas the second sol contained 2.5%.

The Effect of Alum Concentration on the Sizing System

For the preparation of handsheets, the Noble-Wood sheet machine was used according to the procedure outlined in the "Experimental Procedures."

The unbleached sulphite stock was made up to 2% consistency and stirred for 10 minutes. Three per cent (on the basis of the stock weight) of 30% free rosin size was added to the stock, and stirring was continued for 10 minutes. A portion of this stock suspension equivalent to 75 grams of moisture-free stock was removed and used to make up the white water system for the sheet machine.

Aliquot parts of the sized stocks were removed and diluted to a consistency of 0.294%. To this stock, a definite amount of 10% alum was added and, after stirring vigorously, it was allowed to stand for 10 minutes before taking the pH and making the sheets.

A new white water system was made up for every two sets of handsheets which were made. The white water was adjusted with dilute sulphuric acid to the same pH as that obtained with the alum in the sized stock. After making the sheets they were conditioned in the humidity room and tested as described in the "Experimental Procedures." The results are given in Table I, in which B.F. and T.F. are the burst and tear factors. R.B.F. and R.T.F. are the percentage retentions of these factors on aging. Cur. and Fl. are the Currier and fluorescent sizing times.

TABLE I.—THE EFFECT OF ALUM CONCENTRATION ON THE SIZING OF PULP

Alum %	pH	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
.50	6.05	0.78	100	1.22	88	18	48	0.15
1.00	5.48	0.84	89	1.17	81	25	55	0.22
1.50	5.05	0.81	95	1.12	81	26	61	0.26
2.00	4.78	0.80	99	1.09	88	27	61	0.38
2.50	4.58	0.82	95	1.10	77	29	66	0.43
3.00	4.42	0.77	90	1.02	67	26	61	0.36
3.50	4.28	0.78	82	1.12	62	26	55	0.37
4.00	4.22	0.78	85	1.02	66	29	60	0.36

The Effect of pH on the Sizing of Paper Stock at a Constant Alum Concentration

Two hundred grams of unbleached sulphite pulp were made up to a consistency of 2% and stirred for 10 minutes. Three per cent of Prosize on the weight of the stock were added, and the stirring was continued for 15 minutes before the addition of 2.85% of alum. The stock suspension was stirred vigorously and allowed to stand for 15 minutes, at which time the white water was prepared.

Aliquot parts of the sized stock were diluted to a consistency of 0.294% and the pH adjusted to the desired value with 10% solutions of sodium hydroxide and sulphuric acid. The white water was also brought to this same pH. After the pH had been established, the stock was allowed to stand 10 minutes before handsheets were made. The results of the testing of the handsheets are given in Table II.

TABLE II.—THE EFFECT OF pH ON THE SIZING OF STOCK AT A CONSTANT ALUM CONCENTRATION

pH	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
4.05	0.83	89	0.81	74	21	74	0.59
5.00	0.97	96	1.18	80	31	73	0.50
6.05	0.98	91	1.14	85	25	69	0.74
7.00	0.94	92	1.15	97	20	60	0.56
7.95	0.96	98	1.23	91	20	51	0.48
9.00	0.98	98	1.22	98	12	41	0.41

The Effect of Concentration of Alumina Sol in a Stock Suspension

Alumina sol 2 was used in this study. The unbleached sulphite pulp was made up to a consistency of 2%, stirred for 10 minutes, and treated with alumina sol. The pH was adjusted to 6.00 with dilute hydrochloric acid and sodium hydroxide, and the stirring was continued for 10 minutes. A fraction of the pulp was removed for preparation of the white water and, after diluting the remainder of the stock to a consistency of 0.294%, handsheets were made. The results are given in Table III. It was noted in some cases that the burst factor apparently increased with aging, but since this increase was within the limits of experimental error, it is indicated by *.

TABLE III.—THE EFFECT OF CONCENTRATION OF ALUMINA SOL IN A STOCK SUSPENSION

Concn. %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
0.10	0.62	*	1.12	84	0	4	0.10
0.40	0.75	*	1.23	82	2	6	0.55
0.80	0.77	*	1.01	94	13	24	0.62
1.50	0.78	*	1.10	90	16	45	1.52

The Effect of Concentration of an Alumina Sol in a Sizing System

This procedure was a duplicate of the previous experiments, except that 3% of 30% free rosin size were added to the stock suspension at a consistency of 2%. The Prosize was added just after the addition of the alumina sol and the stirring was continued for 10 minutes. The results are given in Table IV. (For explanation of * see Table III).

TABLE IV.—THE EFFECT OF CONCENTRATION OF AN ALUMINA SOL IN A SIZING SYSTEM

Concn. %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
0.10	0.62	*	1.15	88	5	8	0.24
0.40	0.76	*	1.18	77	22	45	0.44
0.80	0.78	*	1.10	87	25	66	0.73
1.50	0.71	*	1.03	78	25	73	1.26

The Effect of pH of an Alumina Sol in a Sizing Suspension

The same alumina sol was used in this procedure. The procedure was identical with that used in the study of concentration of an alumina sol in a stock suspension, except that the pH was varied. The concentration of the alumina sol was held at 0.40%. The results are given in Table V.

TABLE V.—THE EFFECT OF pH OF AN ALUMINA SOL IN A STOCK SUSPENSION

pH	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
4.00	0.69	90	1.22	75	15	19	0.51
5.00	0.66	97	1.18	77	5	8	0.44
6.00	0.73	90	1.20	76	2	5	0.44
7.00	0.71	96	1.14	96	1	4	0.49
8.00	0.70	97	1.12	97	0	3	0.43
9.00	0.69	96	1.06	96	0	2	0.51

The Effect of pH of an Alumina Sol an a Sizing System

This procedure was identical with that of the previous study, except that 3% of 30% free rosin size was added to the stock suspension at a consistency of 2%. The size was added just after the alumina sol, and the stirring was continued for 10 minutes. The results are given in Table VI.

TABLE VI.—THE EFFECT OF pH OF AN ALUMINA SOL IN A SIZING SYSTEM

pH	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
4.00	0.67	96	1.20	77	20	51	0.44
5.00	0.69	96	1.18	79	22	55	0.54
6.00	0.71	..	1.12	85	23	46	0.53
7.00	0.74	97	1.12	85	13	19	0.42
8.00	0.72	97	1.13	95	1	5	0.43
9.00	0.79	98	1.06	96	0	2	0.43

The above procedures to determine the effect of concentration and pH on alumina sols in stock suspensions and sizing systems were studied for the case of Sol 1 (prepared from sodium aluminate and alum), with the same results. It was noted, however,

that Sol 1 was less able to develop a sizing action unless rosin size was present. The sizing which it developed with Prosize was of the same general quality as that obtained previously, and no appreciable effect on the strength values of the sheets was noted. Harrison *(6)* has made the observation that sols which are prepared from the sulphate salts of aluminum will not size when used alone. No explanation has been offered for this phenomenon.

It was noted in the use of Sol 1 that the ash content of the sheets was somewhat higher than was expected from the calculations of the original ash content of the fibers plus the alumina which had been added. This unexpectedly high ash content is also noted in other studies where alumina sol has been added. In Tables VII and VIII, it is seen that the amount of ash found in the sheets is in excess of the amount of alumina which has been added. This may be attributed to the action of the sol in adsorbing extraneous ions which were found to be present occasionally in the softened water. Although the amount of extraneous ions in the softened water is very small, the large quantities of it which were used for the preparation of the white water could contain enough salts to build up the content of ash in the sheets, provided that the sol collected these salts. The studies which have been made on the adsorptive power of the sols would indicate that this is entirely possible.

The Effect of Sulphate and Chloride Ions of an Alumina Sol in a Sizing System

It was found in the work on the preparation of alumina sols that the presence of sulphate ions would prevent the precipitated alumina from peptizing and that a concentration of sulphate ions as low as 17.1 p.p.m. would discharge the sol and cause it to coagulate.

To demonstrate this effect in the sizing system, sulphate ion was added to the sizing system as 1% sodium sulphate (on the basis of the pulp). In one trial, 0.40% alumina, as alumina Sol 2, was added to the pulp, then 3% Prosize was added, and then sodium (sulphate. In another triel this procedure was duplicated except that the sodium sulphate was added to the stock and alumina sol before the Prosize was added. The procedure for making the sheet was the same as that described previously. The results show that the sizing time as measured on the Currier size tester dropped from 22 seconds in the first case to 4 seconds in the second case.

In order to demonstrate more completely the effect of the sulphate and chloride ions on the sizing system when added after the alumina and size solution, the following experiment was carried out.

A portion of the unbleached sulphite pulp was made up to a consistency of 2% and stirred for 10 minutes. Three per cent of 30% free rosin size were added and the stirring continued for 10 minutes. A portion of this stock was used for making up the white water system. The pH of the white water was adjusted to 6.00 with sulphuric acid. Separate portions of the remaining rosin-stock suspension were treated with varied amounts of Sol 2. After stirring the system, it was allowed to stand and then diluted to consistency of 0.294% with softened water. This differs from the usual procedure in which the dilution water was the white water from the sheet machine.

The pH of the stock was adjusted to 6.00 with dilute sulphuric acid. The stock was again stirred vigorously and allowed to stand 10 minutes before making the handsheets. The results are given in Table VII. (For explanation of * see Table III.)

TABLE VII.—THE EFFECT OF SULPHATE IONS OF AN ALUMINA SOL IN A SIZING SYSTEM

Concn. of Alumina %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
0.10	0.67	*	0.95	84	5	21	0.35
0.40	0.81	*	1.07	90	14	36	0.49
0.80	0.78	*	1.20	98	21	56	0.72
1.50	0.86	0.94	1.12	92	21	64	1.30

The above procedure was duplicated exactly, except that hydrochloric acid was used instead of sulphuric acid to adjust the pH of the stock-size system and the white water. The results are given in Table VIII. (For explanation of * see Table III.)

TABLE VIII.—THE EFFECT OF CHLORIDE IONS OF AN ALUMINA SOL IN A SIZING SYSTEM

Concn. of Alumina %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
0.10	0.70	*	0.90	99	2	5	0.39
0.40	0.82	98	1.20	98	9	34	0.44
0.80	0.81	*	1.09	90	14	43	0.70
1.50	0.80	*	1.04	94	18	54	1.30

The Effect of Sodium Sulphate on a Sizing System

The procedure used in this work was the same as that described for the effect of pH on the sizing of paper stock at a constant alum concentration. The pH was not adjusted in this case but was established by the addition of 2.85% alum to the stock. It was 4.70. The pH of the white water was brought to this same value by the use of dilute sulphuric acid. The sodium sulphate concentration is based on the stock weight. It was added after the Prosize and alum had been added to the stock. The results are given in Table IX.

TABLE IX.—THE EFFECT OF SODIUM SULPHATE ON A SIZING SYSTEM

Concn. of Na_2SO_4 %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
10.00	0.80	65	1.18	56	17	64	0.32
5.00	0.79	86	1.18	61	20	70	0.35
1.00	0.75	93	1.23	72	20	75	0.25
0.50	0.75	96	1.05	84	20	73	0.25

The Effect of Precipitated Alumina in a Sizing System

In order to study the effect of precipitated alumina from alum on sizing, the following procedure was carried out.

A sample of the unbleached sulphite pulp was made up to a consistency of 2% and stirred for 20 minutes. To separate portions of this pulp, which were diluted to 0.294% consistency, a definite amount of alum was added. The pH of the system was immediately brought to a pH of 6.50. After stirring vigorously, the pulp was allowed to stand for 10 minutes before 3% of size were added as 30% free rosin size. The pH was again adjusted to the original value and, after stirring vigorously, the system was allowed to stand for 10 minutes before making handsheets. The white water return system was not used, but dilution of the stock in the sheet mold was made with fresh, softened water adjusted to a pH of 6.50 with dilute sulphuric acid. The results are given in Table X. (for explanation of *, see Table III.)

TABLE X.—THE EFFECT OF PRECIPITATED ALUMINA IN A SIZING SYSTEM

Alum Added %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
0.50	0.73	96	1.17	88	5	27	0.18
1.00	0.75	96	1.14	90	5	25	0.20
1.50	0.74	*	1.12	87	5	18	0.25
2.00	0.73	*	1.05	81	5	19	0.30
2.50	0.72	*	1.12	81	12	25	0.33
3.00	0.73	*	1.14	92	20	44	0.31
3.50	0.76	96	1.01	84	19	51	0.30
4.00	0.73	95	1.11	86	16	50	0.31

The Effect of Aging of Precipitated Alumina in a Sizing System

In order to show the effect of aging on alumina which is precipitated in the stock, the above procedure was duplicated for the case of the addition of 3.5% alum to the stock. The only change was that 72 hours elapsed between the time of precipitation of the alum to alumina and the addition of the size solution.

The results show that the sizing time, as measured on the Currier size tester, was reduced from 19 seconds to 11 seconds. As measured on the fluorescent size tester, the size time was reduced from 51 seconds to 33 seconds.

The Effect of Temperature of Precipitation of Alumina in a Sizing System

In order to show the effect of temperature of precipitation of alumina from alum, the experiments on the effect of freshly precipitated alumina were repeated for the case of the 3.00, 3.50, and 4.00% additions of alum. The stock was heated to 96° C. and the alum added and precipitated at that temperature with an amount of sodium hydroxide necessary to bring the pH to 6.50. The stock system was then cooled to 25° C. before proceeding with the addition of the 30% free rosin size up to 3% of the stock weight. The handsheets were prepared in the usual manner. The results are given in Table XI.

TABLE XI.—THE SIZING DEVELOPED WHEN ALUMINA IS PRECIPITATED FROM ALUM AT HIGH TEMPERATURES

Concn. of Alum %	B.F.	R.B.F. %	T.F.	R.T.F. %	Cur. sec.	Fl. sec.	Ash %
3.00	0.76	96	1.10	87	14	39	0.27
3.50	0.76	97	1.15	81	17	33	0.26
4.00	0.74	97	1.10	85	8	38	0.26

To show the effect of aging unprecipitated alum in a stock suspension, the above procedure was duplicated for 3% alum addition, except that the alum was not precipitated. The pH was established as 4.7 from the 3.00% of alum which was added. The stock and alum system was allowed to stand for 72 hours before proceeding with the experiment. The results, compared with the previous study of alum on the sizing system, showed that the sizing was not affected.

To show the effect of temperature of addition of alum to stock suspensions, the above procedure was duplicated, except that the alum which was added to the stock at 95° C. was not precipitated. The alum and stock were held at 95° C. for 10 minutes. It was then cooled and the sizing procedure was continued as described previously. The results indicate that this treatment did not have any effect on the sizing, when compared with the use of alum at ordinary temperatures.

Discussion

The strength results are given as initial tear and burst factors, and also as the percentage retention of these factors on aging for 48 hours at 100° C. It is noted in some cases that there is a wide discrepancy in these strength results. The indications are that the over-all experimental error may be as large as 10%. Every attempt was made to control the conditions of sheet making, but the inherent errors and the fact that the series of experiments extended over a period of months, made it difficult to obtain better accuracy for the strength values.

The results obtained for the effect of varying the concentrations of alum in a sizing system are given in Table II. It is seen that the sizing is improved as the alum concentration is increased from 0.5 to 2.5%. There is no improvement in sizing with the use of larger amounts of alum.

The effect of alum concentration on the strength properties is pronounced. The tear factor decreases as the concentration of alum increases, and the effect of aging develops very considerable losses in both burst and tear factors with increasing concentrations of alum.

These results should be compared with the results obtained on varying the pH at a constant alum concentration (Table II). It is shown in both cases that low pH values enhance the development of good sizing but have deleterious effects on the strength properties of the pulp. The effects on strength values are more apparent when the paper has been aged. It is apparent that it is difficult to attain good sizing with the use of alum without decreasing the pH to such an extent that the strength of the pulp is deteriorated. However, good sizing may be obtained if the acidity, which is obtained when alum is added, is neutralized by the addition of alkali. The pH cannot be reduced below 7, at which point there is a balance between the sizing developed and the effect of pH on the strenth of the pulp.

It was presumed at the start of this work that, if alumina were the effective agent in the development of sizing in a pulp-size system where alum is used, and if a very active form of alumina could be prepared, a superior sizing action might be obtained. Two active alumina sols were prepared and their effect in the pulp-size system was studied.

The first sol used was that prepared from sodium aluminate and aluminum chloride (Sol 2). It was added in various concentrations to a stock suspension and then to a stock-size suspension (Tables III and IV). The results indicate that the presence of the sol alone causes a partial sizing action. This is in accord with the work of Harrison *(6)*. It was noted that a small quantity of the sol caused a decrease in the bursting strenth of the paper. The ash content of the sheets indicated that, depending on the amount of alumina sol added, a considerable quantity of alumina is adsorbed by the fibers. These results show that an alumina sol is a good sizing agent.

A study of the effect of pH on the alumina sol in a stock suspension and in a sizing system was made, the results of which are given in Tables V and VI. The indications are that, whereas the sol alone contributes a sizing action to the handsheets, its effect is lost as the pH is increased; yet the amount of alumina adsorbed by the fibers is fairly constant over the entire pH range. This is true also in the case where rosin size is used in the system. This constancy of adsorption of the alumina on the pulp indicates that the activity of the colloidal alumina has not been altered by the change in pH, but the rosin size, at the higher pH values, has been transformed into a form which is incapable of being precipitated by the alumina. It is possible that the presence of the hydroxyl ions stabilizes the colloidal rosin particles so well that colloidal alumina will not cause their precipitation.

It is evident that, although active alumina sols may produce a sizing action in a rosin-pulp suspension, it is less effective than alum when based on the alumina content. Between 0.40 and 0.80% alumina as alumina sol must be added to the pulp before sizing is obtained. These amounts are equivalent, in alumina content, to 2.61 and 5.22% alum. The alumina sol has the ad-

vantage that it does not develop acidity, whereas the acidity developed by this much alum would be sufficient to cause a deterioration in the strength values of the paper. However, the results of Table II show that, if the acidity of the alum is controlled by the addition of alkali after the addition of the size, alum is just as good a sizing agent as alumina sol, provided that the amount of alum added is such that the concentration of sodium sulphate does not exceed 1%.

The effect of the sulphate ion shows that, if it is added to the sol before the addition of the rosin size, it will prevent the sol from producing any appreciable sizing effect. However, as is shown by the comparison of the results given in Tables VII and VIII, if the sulphate ion is added in limited amounts to the system *after* the size has been added, it will accomplish a better sizing than if chloride ions were added. This may be attributed to the effectiveness of the sulphate ions in causing the precipitation of positively charged particles—that is, if the alumina and rosin form a positive complex, the sulphate ion would aid in accomplishing its precipitation on the fiber.

The fact that sulphate ions inactivate these colloidal sols indicates that this inactive colloidal state of alumina is undoubtedly not generally reached in sizing systems where alum is used. Furthermore, alumina, as precipitated from alum by caustic, is not as efficient an agent as alum for the development of sizing, even though alumina may be partially responsible for the development of sizing. Although no direct evidence has been offered in this investigation for the formation of aluminum abietate or aluminum resinates, the experimental evidence obtained indicates that the alumina which may form in a sizing system is not a sufficiently active agent to develop proper sizing in itself and, therefore, the sizing must be aided by some other constituent.

Because size suspensions are negatively charged, the presence of the sulphate ions, if present in great enough quantities, might possibly serve to stabilize this negative colloid. This was tested by adding excess sulphate ions (as sodium sulphate) to a size system. The results are given in Table IX. They show that there was no appreciable decrease in the sizing when the concentration of sulphate ions was increased. However, the strength values show that the loss in both burst and tear factors, on aging, is very considerable if the concentration of the sodium sulphate is above 1%. This demonstrates that, if the sulphate ions are allowed to build up in a white water system where alum is used, a loss will occur in the strength of the paper.

Conclusion

The work on the nature of precipitated alumina and alumina sols, and the effect of alum, precipitated alumina, and colloidal alumina in the sizing system has led to the following conclusions:

Alumina as precipitated from aluminum salt solutions acts as an adsorbing material for arsenious oxide. This activity of alumina may be correlated with its ability to act as a sizing agent in pulp-size systems, and with its capacity to become peptized to a colloidal sol.

Freshly precipitated alumina is converted to an unpeptizable, insoluble form when it is heated or aged. The presence of sulphate ions accelerates this conversion.

The formation of active alumina sols from precipitated alumina is critically dependent on temperature, concentration, and pH of precipitation, as well as the presence of other ions. If sulphate ions are present, peptization of alumina is very difficult or impossible.

Unpeptized alumina, if present in large enough quantities, will accomplish the sizing of pulp with rosin, but is not as efficient as alum for this action.

Sizing of pulp with rosin may be accomplished by the addition of colloidal alumina sols. Because the sols do not develop acidity, they do not possess any deleterious action on the strength properties of the pulp.

If alumina sols are used in a sizing system, the decrease in sizing which is noted with the increase of pH is not due to the effect of the alkalinity on the alumina, but to its effect on the size.

Since the sulphate ion inactivates colloidal alumina for sizing, this state of alumina is undoubtedly not attained in the usual sizing system where alum is used.

The alumina formed from alum by fibers is not the effective agent in the development of the sizing which is obtained.

Alum is important in the development of good sizing, not only for the formation of alumina, which may be partly responsible for the sizing attained, but for the presense of the free aluminum ions. However, the acidity which alum develops in solution causes an appreciable deleterious effect on the strength properties of the paper.

In sizing with alumina sols and rosin, it is important that sulphate ions be absent until after the rosin and alumina have been added; if added thereafter, the sulphate ions are beneficial.

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Report of Standards Committee for 1943*

By Roger C. Griffin[1]

The year 1943 has been another period of activity and progress in TAPPI standards and methods, second only to 1942. In addition to those mentioned below several more are in the immediate offing.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

[1] Member TAPPI; Chairman TAPPI Standards Committee; Vice President, Arthur D. Little, Inc., Cambridge, Mass.

New and Revised Standards

During the year eight new Tentative Standards were

approved and submitted to the secretary for publication:

T 13 m-43 Lignin in Wood *(1)*
T 222 m-43 Lignin in Woodpulp *(2)*
T 223 m-43 Pentosans in Pulp *(3)*
T 227 m-43 Freeness of Pulp *(4)*
T 460 m-43 Air Permeability of Paper *(5)*
T 462 m-43 Printing-Ink Permeation of Paper (Castor-Oil Test) *(6)*
T 463 m-43 Adhesiveness of Gummed Paper Tape *(7)*
T 628 m-43 Analysis of Rosin Size *(8)*

Four new Suggested Methods were approved and published:

T 224 sm-43 Laboratory Processing of Pulp (Ball-Mill Method) *(9)*
T 225 sm-43 Laboratory Processing of Pulp (Kollergang Method) *(10)*
T 226 sm-43 Specific External Surface of Pulp *(11)*
T 461 sm-43 Flammability of Treated Paper and Paperboard *(12)*

Major revisions of six Official Standards were approved and the first five have been published for the looseleaf manual:

T 2 m-43 Methoxyl Groups in Wood
T 200 m-43 Laboratory Processing of Pulp (Beater Method)
T 209 m-43 Methoxyl Groups in Pulp
T 421 m-43 Qualitative Analysis of Mineral Fillers and Mineral Coating of Paper
T 427 m-43 Saturating Properties of Roofing Felts
T 448 m-41 Water-Vapor Permeability of Paper and Paperboard

Revisions of two Tentative Standards were approved and have been published for the manual:

T 213 m-43 Dirt in Pulp
T 450 m-43 Pentosans in Paper

The ground-glass method for Water Permeability of Paper and Paperboard adopted in 1939 as Suggested Method T 443 sm-39 was withdrawn in June *(13)* because it was found to give inconsistent results with certain types of paper. For similar reasons Procedure A was withdrawn *(14)* from the dry-indicator method for Water Resistance of Paper, T 433 m-41, and Procedure B was withdrawn *(15)* from the method for Water-Vapor Permeability of Paper and Paperboard, T 448 m-41.

The specifications for Chromium-Nickel-Iron Castings for Sulphite Pulp Processing Equipment, E 400 s-36, adopted in 1936, were reviewed by the originating committee and were reapproved in April.

Three Tentative Standards were advanced to official by letter ballot of the Association and will be published for the manual as follows:

T 623 m-44 Determination of Sodium by the Uranyl Zinc Acetate Method
T 624 m-44 Analysis of Sulphate White and Green Liquors
T 625 m-44 Analysis of Sulphate Black Liquor

In the case of T 451 m-40, Rigidity, Stiffness and Softness of Paper and Paperboard, which was included in the same letter ballot, it was felt that this should be continued as a tentative standard for further consideration.

The Committee has had before it for action during the past year 31 methods and standards as compared with 35 during the year 1942 and 19 in 1941. It was perhaps too much to expect that last year's record could be equalled but the work of the Standards Committee in 1943 has exceeded that accomplished in any other year except 1942.

Contents of Book of Standards

Last July there were mailed to the TAPPI membership in looseleaf form 19 new tentative standards, 7 new suggested methods, 5 tentative standards advanced to official, 1 suggested method advanced to tentative standard, 10 corrected methods and 21 revised methods, as well as a new numerical and a new alphabetical index. It was expected to have another mailing in December but this could not be accomplished. It is hoped that this coming year a regular annual schedule of December mailings will be established.

The material now in the looseleaf book consists of the following:

	Tentative	*Official*	*Total*
Standard Recommended Practices	1	10	11
Standard Specifications	0	1	1
Standard Testing Methods	27	87	114
Suggested Methods			13
			139

This is an increase of 10 over last year's report. (It actually represents 11 new items, since one previous suggested method was withdrawn.)

Work of Committees

While most of the committees in the testing division have continued to be active, three of them deserve special recognition. The Chemical Methods Committee, under the chairmanship of B. L. Browning, has presented during the year three new methods and four revisions of existing methods; the Paper Testing Committee, under the chairmanship of B. W. Scribner, has presented four new methods and three revisions; and the Pulp Testing Committee, under the acting chairmanship of J. d'A. Clark, four new methods and one revision. The first two of these committees were on the "honor roll" the previous year also.

The Nonfibrous Materials Testing Committee made the important contribution of a standard method for the analysis of rosin size. This was a long time on the ways, but it has finally been launched! W. F. Hathaway, chairman of this committee, has adopted the practise of sending out to his committee members, and others interested, periodic memorandum reports of the status of projects and other items concerning the committee. During the past 18 months twelve such reports have been received. These have proved very helpful and we strongly recommend that other committee chairmen adopt this excellent procedure. It would stimulate the interest of the committee members and by sending copies to the Secretary-Treasurer, the Vice-President, and the Chairman of the Standards Committee, the latter would be kept informed of progress in committee activities. No lengthy "fireside chats" are necessary, just brief memoranda.

Joint Committee

The TAPPI-ASTM Joint Paper Testing Committee has continued to act as a liaison between the two associations on paper-testing standards. A new method for flammability of paper and one for the kerosene test of roofing felt were developed by ASTM and through the joint committee were presented to TAPPI and have been adopted. Thus far ASTM has adopted and published 25 TAPPI methods.

It would be inept to close this report without a word of appreciation for the cooperation of J. d'A. Clark. How he has managed to perform his duties as Major in the Army and still find spare time to take a major part in the standardization work of TAPPI as general chairman of the Testing Division (as well as acting chairman of the Pulp Testing Committee for a good part of the year) remains a "military secret"!

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13. *ibid.* 116, No. 23:29 (June 10, 1943).
14. *ibid.* 117, No. 1:16 (July 1, 1943).
15. *ibid.* 117, No. 10:30 (Sept. 2, 1943).

How to Get Better Process Water

NORWOOD FILTERS Give You Process Water Protection And Assure A BETTER SHEET

These Norwood Filters are in constant operation at the Fox River plant of the Fox River Paper Corp., Appleton, Wisconsin, makers of fine rag content bonds and ledgers.

YOU get complete protection of your process water by using Norwood Filters. You get water that is of uniform color . . . free from spots and specks . . . pure water that will produce a better sheet.

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- Impregnants to increase tensile strength
- Adhesives for all purposes
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New York Paper and Pulp Market Review

Paper Market Less Active This Week With Tighter Control Over Civilian Supply In Prospect—Wood Pulp Supply For Paper More Limited — Cotton Cuttings Are Tight — Waste Paper Is Active.

Office of the PAPER TRADE JOURNAL,
Wednesday, August 16, 1944.

The wholesale paper market is rather quiet at this date. Demand continues heavy and supplies are insufficient to meet all requirements. The prospect of an increased supply of paper and paper products for civilian consumption is not reported encouraging from Washington. Military requirements for nitrating pulps are becoming heavier. Many paper mills are now reported on a hand-to-mouth basis but the overall production of the industry continues high.

Paper production for the week ended August 7 was estimated at 90.7%, compared with 89.5% for 1943, with 81.4% for 1942, with 99.7% for 1941, and with 87.9% for the corresponding week for 1940.

Paper board production for the week ended August 7 was 96.0%, compared with 94.0% for 1943, with 75.0% for 1942, with 91.0% for 1941, and with 74.0% for the corresponding week for 1940.

The great utility of paper has made it necessary for the government to control its distribution in order to effect as equitable a supply for all users as possible. On August 10 the WPB reported that it was perfecting an order to control the tonnage of paper used in making patterns for garments and needlework. To further conserve the supply of paper, the WPB states this week, a campaign to obtain the pledged cooperation of 300,000 chain and independent food retailers starts. In its report released this week, the WPB declares: "Widely diversified needs for paper and paper board probably will continue strong after the war, and mills should plan now to be able to meet this demand during the rehabilitation and reconversion period."

Wood Pulp

Stocks of wood pulp which were up 3% in May, above April, showed a slight decline in June. The inventory position on July 1 is reported somewhat improved in the sulphate grades but lower in sulphite grades. Pulpwood receipts are improved. Receipts for the first six months of 1944 totaled 8,368,523 cords, compared with 6,609,095 cords for the first six months of 1943, the Department of Commerce reports.

Rags

Supply of new cotton cuttings during the last week began to show more definitely the effects of heavier mill buying, which has become more evident as the wood pulp supply situation tightened. With supplies limited in relation to demand, the market is tight at this date. Prices are strong at ceiling levels.

Demand for many grades of old cotton rags is reported active. Buying of old whites and the roofing grades is heavy at this date. Prices are strong at ceiling levels.

Old Rope and Bagging

Demand for all grades of old rope continues heavy. Prices continue strong under the influence of limited supplies.

Trading in the scrap bagging market is reported a little improved at this date. More interest is being shown by mills. More activity in this market is expected shortly. Prices are rather soft at this date and continue nominal.

Old Waste Paper

Mill demand for all grades of waste paper is reported active. Prices are firm at ceiling levels.

The 500-pound bale provision in Amendment 8 to MPR No. 30, has been severely criticised by all segments of the trade. At the recent meeting of the New York Association of Dealers in Paper Mills Supplies, Inc., it was declared that the 500-pound bale provision should be eliminated and that the $5 processing premium be applied to all processed waste paper, regardless of weight of bales.

Twine

Demand for twine is moderately good at this date. No important change in prices or in the supply situation has been reported this week. Prices are firm and continue unchanged.

Big Cuts in Newsprint Use

Daily newspapers continue to make big cuts in the consumption of newsprint paper. Daily newspapers reporting to the American Newspaper Publishers Association consumed 174,866 tons of newsprint paper in July 1944 compared with 212,260 tons in 1943 and 215,012 tons in 1941. This was a decrease in July 1944 under July 1943 of 17.6% and a decrease under July 1941 of 18.7%. The year 1941 is the base for calculating allowable use by newspapers.

The total estimated newsprint consumption in the United States for July 1944 was 233,155 tons which includes all kinds of uses of newsprint paper. For the first seven months of 1944, it was estimated to be 1,791,188 tons.

During the first seven months of 1944 the reporting newspapers used 1,343,391 tons of newsprint, a decrease of 16.3% under the first seven months of 1943, and a decrease of 20.1% under the first seven months of 1941.

The stocks of newsprint paper on hand with newspapers reporting to the ANPA was 66 days' supply at the end of July 1944 which was an increase of 12 days' supply from 54 days on hand at the end of June 1944.

Associated Box Buys Building

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 14, 1944—The Associated Folding Box Company, 28 Binford Street, has bought the six-story factory building at 30 Binford Street, which will give the concern much more needed space in which to handle expanded operation. The building is of brick construction and served by four freight elevators and a railroad siding. The company plans to remove to the new location about October 1. The owners, Carl Berg and Joseph Caimi, have experienced a rapid and consistent growth since they started business in 1936.

Recover those Rejects with a Bauer Pulper

The Bauer double-disk pulper is best by actual use—scores of installations—for salvage of rejects and screenings. The action is fast, the treatment thorough, the resulting stock uniform and free, and not cut.

Bauerized stock is ready for the paper machine, usually by-passing the jordans.

If interested in turning what would normally be waste into A-1 stock, quickly covering cost of the installation—building up a profit for years thereafter—then install a double disk BAUER pulper.

Bauer

The BAUER BROS. Co.
SPRINGFIELD, OHIO

AVOID ALL WASTE • BACK THE ATTACK • BUY BONDS

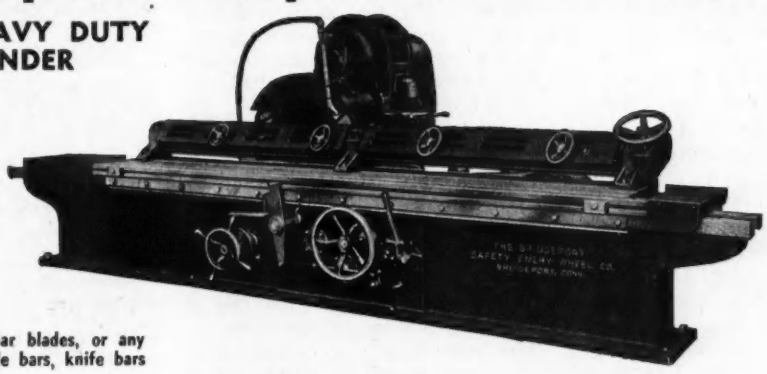
Built with the paper man's problems in mind-

"BRIDGEPORT" No. 180 HEAVY DUTY KNIFE AND FACE GRINDER

✦

For Rapid, Accurate Grinding of—

PAPER KNIVES
CHIPPER KNIVES
RAG KNIVES, Etc.



Also an excellent grinder for veneer knives, shear blades, or any miscellaneous grinding. Operates with various angle bars, knife bars and chucks (including magnetic).

Extremely rugged construction, with many features that make for ease of setting up and smooth, accurate operation. For production grinding or merely for truing up, it is a satisfying addition to any sizable paper mill's equipment. Full details on request.

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, August 16, 1944.

BLANC FIXE—Quotations on blanc fixe continue firm and unchanged. Demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Current demand is heavy but supply is reported adequate, as production is gaining. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24½ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point.

CAUSTIC SODA—Demand continues very heavy. Production high but stocks are low at plants. Prices are unchanged. Solid caustic soda is quoted at $2.30 per 100 pounds; flake and ground is quoted at 2.70 per 100 pounds; all in drums, car lots, at works.

CHINA CLAY—Quotations on china clay are unchanged. Current demand is reported fair. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand reported heavy with all essential requirements met. Quotations are unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—The rosin market reports lower prices on some grades this week. "G" gum rosin is currently quoted at $5.57 per 100 pounds, in barrels, at Savannah. "FF" rosin is currently quoted at $5.55 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $5.84 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are reported unchanged for the current week. Consumption in paper industry at only fair level. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand continues for domestic requirements and market is still tight. Production lower, but stocks are higher at plants at this date. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Shipments of corn are reported lower this week and the supply situation is reported less favorable for processors and outlook appears more uncertain. Quotations unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA — Demand reported good. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is now quoted at the reduced price of $1.85 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand active. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand moderate. Domestic grades are currently quoted at from $16 to $21 per ton, at mines; Canadian at $24 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract...	*$58.00	@	—
Sheets	66.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping...	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag.....	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1.....	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½....	1.00	"	—
White No. 2.....	.90	"	—
Anti-Tarnish M.F..	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet....	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.....	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute.....	11.25	@	—
No. 1 Manila Wrapping, 35 lb....	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.....	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*48.00	"	—
Sgl. Mla. Lt. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards...	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@$46.00	$40.25	@$47.25
100% Rag	32.20 "	37.75	33.35 "	39.25
85% Rag	.... "	....	29.90 "	35.00
75% Rag	23.00 "	27.00	24.15 "	28.25
65% Rag	.... "	....	22.80 "	27.75
50% Rag	18.70 "	22.75	19.90 "	24.25
25% Rag	16.40 "	20.00	17.55 "	21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
No. 1..	$10.55	@$12.75	$11.70	@$14.25
No. 2..	9.65 "	11.75	10.80 "	13.25
No. 3..	9.20 "	11.25	10.35 "	12.50
No. 4..	8.90 "	10.75	10.05 "	12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated...	$13.65	@	$15.50
No. 2 Glossy Coated...	12.40	"	14.00
No. 3 Glossy Coated...	11.60	"	13.25
No. 4 Glossy Coated...	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.....	9.35	"	10.75
A Grade S. & S. C...	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C. ..	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite.....	$86.00
Unbl. Softwood Sulphite.....	74.00
Bl. Hardwood Sulphite.....	83.50
Unbl. Hardwood Sulphite.....	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich ..72.00 @	82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate...	82.00
S. Semi Bleached Sulphate...	75.00
N. Unbl. Sulphate.....	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area).....	10.50
West Coast (out area).....	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area).....	9.50
West Coast (out area).....	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

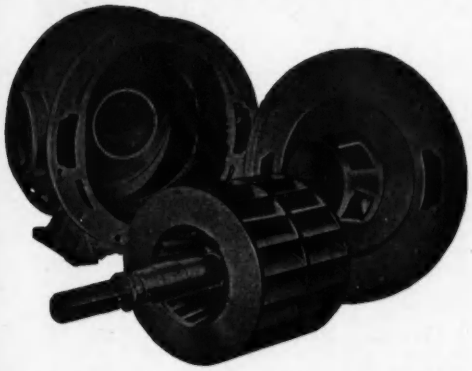
New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1..	6.50	@	7.25*
Silesias No. 1.....	—	"	5.75*
New Unbleached...	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

SIMPLICITY

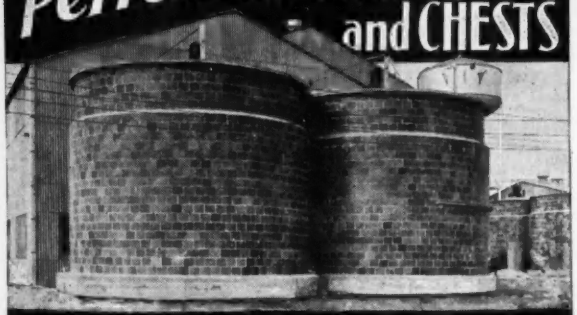


NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

Perfect for Stock TANKS and CHESTS



Kalamazoo GLAZED TILE

No cracked, flaking or pitted walls when your tanks are constructed throughout with Kalamazoo Vitrified glazed tile. Impervious to practically all chemicals. Walls are smooth and hard, making them easy to clean and free flowing for stock. Most economical and satisfactory type of construction for stock tanks and chests as they are built to LAST.

Widely favored by paper mill executives—and immediately available.

●

Any Size or Shape—

Kalamazoo Glazed Tile is available in various sizes suitable for lining round or square tanks, half-round or tapered bottoms, or rounded corners. As flexible as poured concrete, being easily fitted to any space or production layout.

● **Ask for engineering data.**

Kalamazoo TANK & SILO CO.
KALAMAZOO - MICHIGAN

MAPICO REDS

USE THEM IN YOUR

FIBER BOARDS

Permanent in color . . . Unaffected by light, acids or alkalies... Possess high tinting strength . . . Have good fiber adhesion . . . Are soft and smooth in texture . . . Show low loss in wash water.

MAPICO REDS are available in three standard shades. Extended with white, they produce a pleasing variety of orchids, corals and pinks.

MAPICO *Colors*

ARMY E NAVY

COLUMBIAN COLLOIDS

PURE OXIDES OF IRON

YELLOWS • REDS • BROWNS • BLACKS

We will gladly send samples and complete technical information.

COLUMBIAN CARBON CO.
MAGNETIC PIGMENT DIVISION
MANUFACTURER
BINNEY & SMITH CO., *Distributor*
41 EAST 42nd STREET, NEW YORK 17, N. Y.

Old Rags

White, No. 1—
Repacked ..... *3.80 "
Miscellaneous .... *3.20 "
White, No. 2—
Repacked ..... *2.90 "
Miscellaneous .... *2.65 "
Third and Blues—
Repacked ..... *2.20 "
Miscellaneous .... *1.80 "
Roofing Rags—
No. 1 ..... *1.55 "
No. 2 ..... *1.45 "
No. 3 (bagging) .. *1.35 "
No. 4 ..... *1.35 "
No. 5A ..... *1.35 "
Old Manila Rope .. 5.75 "
OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings .. 2.25 @ 2.40
New Mixed Cuttings . 2.00 " 2.20
New Light Silesias .. 5.50 " 5.75
Light Flannelettes ... 5.50 " 5.75
New White Cuttings . 7.00 " 7.50
New Light Oxfords . 4.00 " 4.50
New Light Prints ... 3.00 " 3.25

Old Rags

No. 1 White Linens . 7.50 " 8.50
No. 2 White Linens . 6.50 " 7.50
No. 3 White Linens . 4.50 " —
No. 4 White Linens . 2.25 " 3.25
No. 1 White Cotton . 4.25 " 4.75
No. 2 White Cotton . 3.25 " 3.75
No. 3 White Cotton . 2.50 " 3.00
No. 4 White Cotton . 1.90 " 2.20
Extra Light Prints .. 2.00 " 2.40
Ord. Light Prints ... 1.75 " 2.15
Med. Light Prints ... 1.55 " 1.95
Dutch Blue Cottons . 2.25 " 2.50
French Blue Linens . 3.00 " —
Checks and Blues ... 2.00 " —
Linsey Garments .... 1.90 " 2.00
Dark Cottons ..... 1.50 " 1.60
Old Shopperies ..... 1.30 " 1.45
New Shopperies ..... 1.45 " 1.50
French Blues ..... 2.25 " 2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—
Foreign ..... Nominal
Domestic ..... 4.25 @ 4.35
Wool Tares, light .... 4.25 " 4.50
Wool Tares heavy ... 4.50 " 5.00
Bright Bagging ..... 4.50 " 4.85
Manila Rope—
Foreign ..... — " —
Domestic ..... *5.75 " —
Jute Threads ..... 5.50 " —
No. 1 Sisal Strings .. *4.00 " —
Mixed Strings ..... 2.00 " —
* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)
OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut ..... 3.37½ @ —
No. 1 Hard White Envelope Cuts .... 3.12½ " —
No. 1 Hard White Shavings, unruled. 2.87½ " —
No. 1 Hard White Shavings, ruled... 2.50 " —
Soft White Shavings, one cut ..... 2.87½ " —
No. 1 Soft White Shavings ..... 2.50 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 Fly Leaf Shavings ..... 1.67½ " —
No. 2 Fly Leaf Shavings ..... 1.12½ " —
No. 1 Groundwood Fly Leaf Shavings 1.25 " —
No. 2 Mixed Groundwood Fly Leaf Shavings ..... .90 " —
Mixed Colored Shavings ..... .75 " —
Mixed Groundwood Colored Shavings .. .90 " —
Overissue Magazines ..... 1.67½ " —
No. 1 Heavy Books & Magazines ..... 1.92½ " —
Mixed Books ..... 1.10 " —
No. 1 White Ledger .. 2.30 " —
No. 2 Mixed Ledger, colored ..... 2.00 " —
New Manila Envelope Cuttings, one cut .. 2.87½ " —
New Manila Envelope Cuttings ..... 2.65 " —
Extra Manilas ..... 1.95 " —
Mixed Kraft, Env. & Bag Cuttings ..... 2.75 " —
Kraft Envelope Cuttings ..... 3.25 " —
Triple Sorted, No. 1 Brown Soft Kraft. 2.50 " —
New 100% Kraft Corrugated Cuttings .. 2.25 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
New Jute Corrugated Cuttings ..... .90 " —
Old 100% Kraft Corrugated Containers 1.75 " —
Old Corrugated Containers ..... 1.40 " —
Box Board Cuttings. .75½ "
White Blank News .. 1.65 "
Overissue News ..... 1.10 " —
No. 1 News ..... 1.00 " —
No. 1 Mixed Paper ... .95 " —
Old Corrugated Containers ..... 82½ "
Mill Wrappers ..... 1.10 " —

Twines

All Prices Nominal
(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—
India ..... .21 @ —
White Hemp ..... .21 " —
Fine Polished—
Fine India ..... 26 " —
Unpolished—
Box ..... 17¼ " —
Paper Makers ..... .17 " —
Tube Rope ..... 19 " —
Wall Paper ..... .20½ " —
Wrapping ..... .23 " —
Soft Fiber Rope ... .19 " —
Cotton ..... .25 " —

(Hard Fiber)

Medium Java ..... .18 " —
Mex. Sisal ..... .16 " —
Manila ..... — " —

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—
New White No. 1 ..... .07¼
New White No. 2 ..... .05¾
Light Silesias ..... .05¾
Black Silesias, soft ..... .03¾
New Unbleached ..... .07½
Washable Prints ..... .04¾
Washable No. 1 ..... .03
Blue Overall ..... .05½
Cottons—According to grades—
Washable shredding ..... .01¾
Fancy Percales ..... .04¾
New Black Soft ..... .03¾
Khaki Cuttings—
Unbleachable Cotton Cuttings .03½
Bleachable Cotton Cuttings .. .04¾
Men's Corduroy ..... .03½
Ladies' Corduroy ..... .03
Cottonades ..... .03¾

Domestic Rags (Old)

White No. 1—Repacked ..... 3.80 "
Miscellaneous No. 1. 3.20 "
Miscellaneous No. 2. 2.65 "
White No. 2—Repacked ..... 2.90 "
Thirds and Blues—
Miscellaneous .... 1.80 "
Repacked ..... 2.20 "
Black Stockings—(Export) ..... Nominal
Roofing Stock—
Foreign No. 1 .... Nominal
Domestic No. 1 ... 1.55 "
Domestic No. 2 ... 1.45 "
Roofing Bagging .. 1.25 "
Old Manila Rope ... 5.75 "

Bagging

(F. o. b. Phila.)

Gunny No. 1—
Foreign ..... Nominal
Domestic ..... 3.00 " 3.50
No. 1 Clean bright—Sisal Strings ..... .04
No. 2 Clean bright—Sisal Strings ..... .03
Sisal Jute ..... .02½ " .02¾
Scrap—
No. 1 ..... 3.25 " 3.50
No. 2 ..... 1.75 " 1.80
Wool Tares heavy ... 4.00 " 4.25
No. 1 New Light Burlap ..... 3.00 " 4.00
New Burlap Cuttings 3.75 " 4.00

Old Papers

(F. o. b. Phila)
OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut ..... 3.37½ " —
No. 1 Hard White Shavings, unruled .. 2.87½ " —
Soft White Shavings, one cut ..... 2.50 " —
White Blank News .. 1.65 " —
Soft White Shavings. Misc. ..... 2.15 " —
No. 1 White Ledger .. 2.30 " —
No. 2 Ledger, colored 2.00 " —
No. 1 Heavy Books & Magazines ..... 1.92½ " —
Overissue Magazines 1.67½ " —
New Manila Envelope Cuttings ..... 2.65 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
No. 1 Mixed Paper ... .95 " —
Box Board Cuttings .75½ "
Kraft Corrugated Cuttings ..... 2.25 "
Old Corrugated Containers ..... 1.40 " —
Overissue News ..... 1.10 " —
No. 1 News ..... 1.00 " —

BOSTON

Old Papers

(F. o. b. Boston)
OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled. 2.87½ @ —
No. 1 Hard White Shavings, ruled... 2.50 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 Fly Leaf Shavings ..... 1.67½ " —
No. 2 Fly Leaf Shavings ..... 1.12½ " —
No. 1 Groundwood Fly Leaf Shavings 1.25 " —
No. 2 Groundwood Fly Leaf Shavings .90 " —
Mixed Colored Shavings ..... .75 " —
New Manila Envelope Cuts, one cut ..... 2.87½ " —
Hard White Envelope Cuts, one cut ..... 3.37½ " —
Triple Sorted No. 1 Brown Soft Kraft. 2.50 " —
Mixed Kraft Env. & Bag Cuttings..... 2.75 " —
Kraft Envelope Cuttings ..... 3.25 " —
No. 1 Heavy Books & Magazines ..... 1.92½ " —
New Manila Envelope Cuts, one cut ..... 2.87½ " —
New Manila Envelope Cuttings ..... 2.65 " —
White and Colored Tabulating Cards .. 2.25 " —
Ground Wood Tabulating Cards ..... 1.35 " —
White Blank News .. 1.65 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
No. 1 Mixed Paper ... .95 " —
Overissue News ..... 1.10 " —
Box Board Cuttings. .72½ "
New Corrugated Cuttings, Kraft ..... 2.25 " —
Old 100% Kraft Corrugated Containers 1.75 " —
Old Corrugated Containers ..... 1.40 " —
Jute Corrugated Cuttings ..... 1.07½ " —

Bagging

(F. o. b. Boston)

Gunny Bagging—
Foreign ..... (nominal)
Domestic ..... — @ 2.75
Sisal Rope No. 1 .... *4.75 "
Sisal Rope No. 2 .... *4.25 "
Mixed Rope ..... — " 1.55
Transmission Rope—
Foreign ..... (nominal)
Domestic ..... 2.75 " 3.00
Manila Rope—
Foreign ..... (nominal)
Domestic ..... 5.75 " —
Soft Jute Rope ..... 5.25 " —
Jute Cer Threads. 3.00 " 3.50
Bleachery Burlap .... 8.50 " 9.00
Scrap Burlap—
Foreign ..... (nominal)
Domestic ..... — " 2.50
South American ... — " 3.00
Wool Tares—
Foreign ..... (nominal)
Domestic 4.25
Aust. Wool Pouches .. — " 3.25
New Zealand Wool Pouches ..... — " 3.50
New Burlap Cuttings 4.75
Heavy Baling Bagging 4.00 " 4.
Paper Mill Bagging .. 2.50 " 3.00
No. 2 Roofing Bagging 1.35 " —
* OPA Maximum Price

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—
New Light Prints .. .04½ @ .04
Fancy Percales .... .04¾ " .05
New White No 1. .06¾ " .07
New Light Flannelettes ..... .05½ " .06
Canton Flannels, Bleached ..... .06 " .06½
Underwear Cutters, Bleached ..... .06¼ " .06½
Underwear Cutters, Unbleached ..... .05¼ " .06
Silesias No. 1 ..... .06 " .06¼
New Black Silesias .. .03 " .03½
Red Cotton Cuttings .03½ " .04
Soft Unbleached ... .06½ " .06½
Blue Cheviots .... .05½ " .06
Fancy ..... .02¾ " —
Washable ..... .02¾ " —
Khaki Cuttings .... .02¾ " .03
O. D. Khaki ..... .03½ " .03½
Corduroy ..... .03¼ " .03½
New Canvas ..... .06¼ " .06½
B. V. D. Cuttings ... .06¼ " .06½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—
Repacked ..... 3.80 @ —
Miscellaneous .... 3.20 " —
White No. 2—
Miscellaneous .... 2.65 " —
Twos and Blues, Repacked ..... 2.20 " —
Old Blue Overalls ... 2.25 " 2.30
Thirds and Blues, Repacked ..... 2.20 " —
Miscellaneous ..... 1.80 " —
Black Stockings .... 3.50 " 4.00
Roofing Stock—
No. 1 ..... 1.55 " —
No. 2 ..... 1.45 " —
No. 3 ..... 1.35 " —
No. 4 ..... 1.35 " —
No. 5, Quality A .. 1.35 " —
Quality B .. 1.20 " —
Quality C .. .95 " —
* Old Manila Rope .. 5.75 " —
* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas ..... (nominal)
Dark Cottons ..... (nominal)
Dutch Blues ..... (nominal)
New Checks and Blues .. (nominal)
Old Fustians ..... (nominal)
Old Linsey Garments .... (nominal)
New Silesias ..... (nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)
OPA Maximum Prices, Baled

Shavings—
No. 1 Hard White Envelope Cuts, one cut ..... 1.37½ " —
No. 1 Hard White Shavings, unruled. 2.87½ " —
No. 1 Soft White Shavings ..... 2.50 " —
No. 1 White Ledger .. 2.30 " —
No. 1 Heavy Books & Magazines ..... 1.92½ " —
White Blank News .. 1.65
Mixed Kraft Env. & Bag Cuttings ... 2.75 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
Overissue News ..... 1.10 " —
No. 1 News ..... 1.00 " —
No. 1 Mixed Paper ... .95 " —
No. 1 Roofing Rags. 1.55 " —
No. 1 Roofing Bags. 1.45 " —